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EDITORIAL

INCREASE IN THE ARMY MEDICAL DEPARTMENT.

The Owen-Dyer bill, which has been finally passed and has received the approval of the President of the United States, provides for a substantial increase in the personnel of the medical department of the regular army.

There is provision for one Assistant Surgeon General for service abroad during the present war, who shall have the rank of major general. The combined purpose of this action may well have been to permit the retention of the most valuable supervisory services of General Gorgas beyond the retiring age, while providing for the active work on the front of a younger man—retaining a Joffre as

the head of the staff, and, we hope, placing a Foch in the fighting area.

There will be also two other Assistant Surgeon Generals with the rank of brigadier general. All these to be appointed by the medical corps of the regular army.

In addition, the President is empowered to appoint in the medical department of the national army, from the Medical Reserve Corps, not to exceed two major generals and four brigadier generals.

The commissioned officers of both the Medical Corps and the Medical Reserve Corps of the regular army shall be proportionately distributed in the several grades, none to be above the grade of colonel, as now provided by law for the Medical Corps.

These additions are estimated to give in the Medical Reserve Corps the following: Two major generals, four brigadier generals, 675 colonels, and over 2,000 of the ranks below. They will provide the medical officers needed to bring the medical department up to proper numerical strength and give the officers the authority necessary to lead to their maximum efficiency.

ORIGINAL ARTICLES

(No paper published or to be published in any other medical journal will be accepted for this department. All papers must be in the hands of the Editors on the tenth day of the month preceding that in which they are expected to appear. Reprints may be had at reasonable rates if a WRITTEN order for the same accompany the paper.)

RUPTURED GASTRIC AND INTESTINAL ULCERS.*

By H. W. KOSTMAYER, A. B., M. D., House Surgeon, Charity Hospital, New Orleans.

The cases herein presented are taken from personally-kept records, though they all occurred as part of the writer's routine duties at Charity Hospital during the year 1917:

Case 1. F. T., White male, age 49 years, resident of New Orleans; occupation, tyler.

This man was brought in late in the evening of February 14 in so much pain that the following history was all that could be obtained: He has had indigestion or dyspepsia for over twenty years, for which he has taken soda and other remedies, with only temporary relief. Some months ago he had violent cramps in upper abdomen, which put him to bed for some days and from which he recovered. The present attack began with sudden, violent onset about two hours before admission, with pain over his abdomen, especially in the upper right side. He vomited, had a cold, clammy sweat, and he came in with an exquisitely sensitive abdomen throughout. It was intensely rigid, though pulse was fairly good. A diagnosis of a ruptured duodenal or gastric ulcer was made, and the latter was found at the immediate laparotomy.

The ulcer was on the outer wall of the stomach, near the pylorus, with an enormously indurated area surrounding it. It was plastered over with exudate, and in its neighborhood were organized adhesions of the omentum and transverse colon, which are believed to indicate a previous leakage of this ulcer, with spontaneous closure. The ulcer was closed and a posterior gastro-enterostomy was done under great technical difficulties, because of the fixation of the stomach. The patient was returned to the ward in fair condition. No drainage was done.

On being returned to the ward this man's pulse was found very rapid and weak and his respiration shallow. He was given morphia and proctoclysis, which were continued for the next few days as indicated. As soon as he reacted he was placed in the sitting posture in bed and allowed cracked ice and water sparingly. A very persistent and annoying hiccough developed, which subsided after forty-eight hours, though he would never submit to the "stomach tube." Distention was relieved by pituitrin and rectal flushes. After four days of storm he made a slow but steady recovery and was discharged as apparently well on the twenty-eighth post-operative day. During February, 1918, one year after operation, he re-

* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

turned, reporting that he was feeling better than he had in twenty years and was able to eat anything.

Case 2. H. S., white male, age 37 years, resident of New Orleans; occupation, laborer.

This man states that for one and one-half years he has been having indigestion, with a great deal of distention and discomfort after eating. He has vomited frequently. His pain has always been aggravated by food, and never relieved by it. Soda and diet have seemed to help him. This evening he had a sudden violent pain in the epigastrium, which has grown in intensity until now he is in agony. Morphia has not helped his pain. His abdomen is uniformly distended, rigid and hypersensitive. Diagnosis of a ruptured gastric ulcer was made.

Under ether a right rectus incision was made, confirming the diagnosis. A punched-out ulcer, with a hole about the size of a five-cent-piece, and the whole exudate about the size of a half-dollar, was found upon the lesser curvature and about midway between the cardiac and pyloric ends. This was closed with two rows of cat-gut. The abdominal cavity was filled with gastric contents, so two drains were inserted in the upper incision and two were placed in an incision above the pubis. From the latter an enormous quantity of contents poured out. A gastro-enterostomy was not performed, because of the man's condition and because it was believed the perforation had practically cured the ulcer. Cauterization probably should have been done here.

Sitting posture, proctoclysis, rectal flushes and morphia were used during the first three days, after which the patient made a rapid recovery, being permitted to go home on the fifteenth post-operative day.

Case 3. W. B., white male, age 22 years, resident of New Orleans; occupation, hospital orderly.

This patient was seen in the middle of the night by a doctor in town, who sent him in with a diagnosis of acute appendicitis. When I saw him in the admitting room there was a great deal of rigidity and tenderness over the entire abdomen, especially on the right side, near the appendiceal region. The upper abdomen was comparatively flaccid, or, rather, was not as tender and tense as was the lower abdomen. The patient denied having had indigestion or any other discomfort. Before he had this attack, a previous one of violent pain in the right lower abdomen, near the appendix, had subsided until one or two hours before admission, when, following the taking of enemas, the pain recurred much more violent and continued up to the time of his admission. On these findings a diagnosis of an acute ruptured appendix was made and the abdomen opened.

Under ether, a right rectus incision was made and, immediately upon opening the abdomen, free, cloudy fluid appeared, characteristic of a ruptured gastric ulcer. The ulcer was found immediately in the pyloric ring, the pylorus being prolapsed right over the classical point for the appendix. As this patient is 7 feet 2 inches in height, the abdominal cavity was correspondingly low, which probably explains the reference of his pain to the site of the appendix, as also the absence of the upper abdominal rigidity.

The ulcer was closed with a row of interrupted cat-gut sutures and reinforced with continuous "lock" stitch of cat-gut. Posterior gastro-enterostomy was done with cat-gut throughout, with a little difficulty, because there had apparently been some previous leak into the lesser peritoneal cavity, causing some adhesions here.

This patient's first three days were uncomfortable, because of con-

siderable nausea and some vomiting, but from then on he progressed rapidly in his convalescence and was allowed out of bed on the ninth day and went home on the tenth day. He has been heard from several times, and at present writing he is still in perfectly good health.

Case 4. E. D., white male, age 58 years, resident of New Orleans.

This old man came in with a history that was confused because of the severity of his malady, and also because he speaks very little English, making it almost negligible. His age, the exquisite sensitiveness of his abdomen and upper abdominal rigidity all point to a ruptured ulcer of the stomach or duodenum.

With this diagnosis the abdomen was opened through a long right rectus incision under ether. A plastic exudate appeared everywhere, with evidence of diffuse peritonitis, the free border of the liver being adherent to the surrounding structure. The abdomen filled with a very cloudy fluid when the liver was freed up, duodenal contents pouring out of the pocket beneath, which, when dried, exposed a perforated ulcer of the duodenum, the center of this ulcer being as large as the head of a lead pencil.

Because of this man's condition, and the fact that the omentum had to a certain extent excluded its contents from the general cavity, and also because the contents poured out too profusely to keep the opening exposed, nothing was done except to drain the abdomen in four different places—one above the pubis, the other three drains in the wound proper. The abdomen was closed with through-and-through silkworm.

Patient was admitted to the ward, from operating room, with pulse of poor volume. Bed was placed in Fowler's position; mustard jacket was applied to chest for thirty minutes; he was given morphia and hypodermoclysis. Patient was restless, and complained of distention throughout this afternoon and early morning of the following day. Morphia given, and proctoclysis was continued. Pulse grew weaker, finally imperceptible, patient dying at 2 a. m. on the second post-operative day.

Case 5. E. C., colored male, age 32 years, resident of New Orleans; occupation, laborer.

This darky was brought into the hospital about 10:30 p. m., stating that he was perfectly well up to 1 o'clock that afternoon—that is, about nine hours before admission—when he was taken suddenly with violent pain in his upper abdomen. After a while the pain subsided sufficiently for him to go home from work, when he was again seized with pain and prostrated, but did not vomit. However, on cross-questioning this patient, he admits that he has been having "stomach trouble" for many months, which has sometimes been relieved by taking food, but was never aggravated by it. His abdomen is moderately distended, sensitive and rigid, especially in the region of the upper quadrant, but not nearly as well marked as most cases of ruptured ulcer, so the diagnosis of "ruptured duodenal ulcer" was hesitatingly made. A right rectus incision under ether soon confirmed it, however.

His abdominal cavity was filled with stomach and duodenal contents, which were still pouring from the punched-out duodenal ulcer near the pylorus. The ulcer was closed with Lembert's cat-gut sutures, and a posterior gastro-enterostomy was now done, under great difficulty, because of a very small, thin-walled stomach, which was closely attached to the posterior abdominal wall. It was finally accomplished, the wound was drained and a supra-pubic drain was also inserted.

This patient was returned to the ward in very good condition, considering what he had just gone through, and was quiet that night, after a dose

of morphia, but was greatly distended next day, which distention was very little relieved during the next nine days, in spite of the use of flushes and pituitrin. He seemed to have no recuperative powers and grew steadily worse, dying, apparently of exhaustion, on the ninth post-operative day. No autopsy was permitted.

Case 6. I. W., colored male, age 34 years, residence not given.

This patient was brought to the hospital with a history of having been ailing with indigestion for about one month preceding admission. He says that taking food has never caused him any pain. Two days before admission, however, he had a sudden violent pain in the epigastrium, which persisted without relief. He did not vomit, and he has had no stool since the pain first began. His pulse was perfectly normal, but the facial expression is drawn and pinched. His abdomen is exquisitely sensitive all over, but especially in the epigastrium, which is as rigid as a board, despite the long duration of the disease, though it is distended rather than contracted. Diagnosis of a "ruptured duodenal ulcer" was unhesitatingly made, and was immediately confirmed by operation.

Under ether, a right rectus incision was made, and the abdomen was found filled with contents of the bowel; there was already a diffused peritonitis. The ulcer was closed with cat-gut, and one drain was placed over the pubis. Patient died, apparently from exhaustion, the following morning.

It will be readily recalled that all six of these cases are males, in which connection it might be mentioned that the writer has never seen a ruptured gastric or duodenal ulcer in a female. The ages ranged from twenty-one to fifty-eight years, the majority being between thirty and fifty years. There was slight preponderance of whites, there being four out of six cases. Exactly one-half of the cases were gastric and one-half duodenal ulcers, and it is worthy to note that the three gastric ulcer cases survived, whereas the three duodenal ulcer cases died. However, the duodenal cases came to operation after a longer period following the rupture. In all cases, except the first, free drainage was instituted, care being taken to insert a drain over the pubis in addition to draining the wound. No lavage of the abdomen was done. The first case was not drained because the patient presented himself so soon after the rupture, and because there was very little soiling of the peritoneal cavity.

The outstanding feature in the history of these cases is the suddenness and violence of the onset of the symptoms. Patients are usually in such distress that it is only with a great effort that any history at all can be obtained. They beg piteously for relief of pain, and the abdomen is usually exquisitely sensitive, to the extent that even the weight of bed-clothing causes extreme distress. The sufferer resents any attempt at examination, and the abdominal wall is more rigid than for any other condition. Respiration is short and jerky,

because of the immobilization of the diaphragm. The pulse was very good in the cases seen early, but rapid, weak and thready in the late cases. Vomiting occurred about as often as not, so is of no diagnostic value. It is, therefore, very difficult to differentiate between gastric and duodenal ulcers, but the diagnosis of ruptured ulcer of either of these viscera is one of the most certain of all acute abdominal conditions with which we meet, this, of course, provided the case is seen before the late symptoms of peritonitis and exhaustion develop. In these latter stages a diagnosis of surgical abdomen can be made from the physical findings, but it is only by painstaking history details that the true diagnosis can be ventured. In one or two cases the site of the ulcer could be suspected by a relatively more sensitive and rigid area on the abdominal wall, all of which is merely in accord with well-known teachings on the subject.

No far-reaching conclusions can be drawn from so few cases, yet the number suffices to determine that the condition, after all, is not a very unusual one and that the picture is so classical that a little experience and thought will readily lead to an early diagnosis, which is all-important.

As to the treatment of these cases, there can be no doubt that one indication is clear—that is, immediate laparotomy! The next unmistakable step is closure of the ulcer. Whether or not it should be cauterized with a hot iron is open to question, because most ruptured ulcers had cured themselves, so to speak, by rupturing. However, it takes but a moment to apply the cautery to the punched-out area, and it perhaps has its value. As to whether or not gastro-enterostomy should be done undoubtedly depends on the condition of the patient. If the general condition is good, if there are no special technical difficulties, and if the soiling of the peritoneum has not been of long duration, certainly drainage of the stomach by gastro-enterostomy, with its constant relief of irritation of the ulcerated area, will be of great value and benefit to the patient. If, on the other hand, the rupture has occurred sometime before the patient presents himself, and if his general condition will not stand the necessary prolongation of the operation, it is far wiser merely to close the ulcer and drain the abdomen. It is highly important to drain the lower abdomen, because the contents of the stomach and duodenum gravitate rapidly to the pelvis.

The two most important post-operative adjuncts are the sitting posture and rectal flushes. To these may be added the stomach tube

when used as a syphon, it being rather dangerous to wash out the stomach. The patient may be sustained during the post-operative storm by hypodermoclysis and proctoclysis, especially glucose in the latter. Morphia may also be given, and generously.

The next case presents a very different type, but is believed appropriately reported here:

P. B., colored male, age 11 years, resident of New Orleans.

This boy was in the hospital for seven days, being treated for typhoid fever. On this day he had a sudden collapse, pain in his abdomen, with a drop in temperature from 106° to 97°. His white count was 15,250, with 87 per cent neutrophiles. When first seen, ten hours after the original collapse, his abdomen was rigid throughout, with tenderness more marked over the appendix area. A diagnosis of ruptured typhoid ulcer was readily made, and immediate laparotomy was done, through a right rectus incision, under ether. The ruptured ulcer was found about four or five inches from the ileocecal valve, and was rapidly closed with two layers of catgut suture. The wound was drained and stab wounds were made over the pubis and over the left and right iliac fossa, into which cigarette drains were inserted. Peritonitis was already quite diffuse, with no adhesions. Before the wound was closed some twenty-four inches of terminal ileum were examined for further perforation, but none was discovered. He was returned to the ward, in very fair condition, considering the procedure.

This little boy had a post-operative pneumonia and infected wound, which opened down to the peritoneum at one point. He got out of bed several times early in his convalescence, and in spite of all things he finally made a complete recovery and left the hospital on the ——— post-operative day.

This lad had wonderful resisting powers, as most boys of this age have, and undoubtedly it is to this that he owes his recovery. Nevertheless, promptness in diagnosis, rapidity in operating and the institution of free drainage were factors in his recovery also. A sudden collapse in the course of typhoid fever usually means hemorrhage or ruptured ulcer, and the blood count will always promptly differentiate the two. It must be borne in mind that ruptures of typhoid ulcers practically always occur in the terminal eighteen inches of ileum, therefore no needless search of the remaining small bowel should be made.

According to the records of Charity Hospital, this is the only case of ruptured typhoid ulcer operated on that recovered in that institution, and was, therefore, thought sufficiently interesting to be reported.

Discussion on the Paper of Dr. Kostmayer.

Dr. C. P. Gray, Monroe: I feel very much indebted to the doctor for having had the privilege of hearing this paper, inasmuch as it brings home several cases which it has been my unhappy experience to deal with, and there are one or two points I wish to discuss and, at the same time, commend the doctor for bringing out the essential points as best he could in the short length of time at his disposal.

In the first place, let us take a patient who is seized with a pain in the upper abdomen anywhere, and with collapse. Oftentimes these patients faint, and at other times they do not. But they have an excruciating pain, and, to use the layman's language, they have that general fainting feeling, with hot and cold flashes and a weakened pulse—in other words, the same clinical picture that you would expect to find in a ruptured bowel with typhoid fever. Whenever you see a case like that, go over the past history of the patient. If the patient is not able to give you this history, then talk it over with his wife, brother or sister, and you can elicit from them the information as to whether or not the patient had indigestion and pain in the stomach afterwards or before. In the majority of cases you will find these patients have had dyspepsia; they have been taking bicarbonate of soda, and so forth, and probably have been treated by three or four or five or six physicians for indigestion. Almost invariably you will elicit a past history of indigestion, a feeling of fullness, shortness of breath and pain. Bear in mind the pain. You do not get pain when the stomach is full, but usually you get it when the stomach is empty. So much for the past history.

In the other points which I wish to bring out I differ with the doctor just a little. In those cases with the sudden onset of pain and with the symptoms that I have just enumerated, what is your most probable diagnosis? You know, and any one who has practiced surgery at all knows, that you have some surgical lesion in the upper abdomen. What are you going to do? My position is that if you see that patient within the first eight or ten or twelve hours, by all means open the abdomen. If the patient's condition is such that it is not safe, and in your judgment it is not wise to give a general anesthetic, do the operation under local anesthesia. It can be done, and has been done any number of times and with very satisfactory results. If a patient can stand a general anesthetic, give it to him; if not, do the operation under local anesthesia.

In opening the abdomen, whether for a gastric or duodenal ulcer—and, by the way, both practically produce the same symptoms—the question is to meet the emergency, and, as Dr Charles Mayo has said, the man who can meet the emergency is the real surgeon. When you open the abdomen and find a perforated ulcer of the stomach or of the duodenum, close it. In my experience and in my judgment, from a review of the literature on the physiology and visits to the Northern and Eastern clinics, the easiest way to do that is by a simple suture. You may cauterize it, or you may not do so, but my plan is, if the ulcer has already perforated, to go back about one-quarter or half an inch and put a purse-string suture and push it in, and put in another suture to reinforce it, not with silk, but with catgut. After you have done that, then, as the doctor mentioned, put in drainage, and plenty of it, in order to drain the abdominal cavity, and place the patient in the upright position. The reason that I suggest this is that it is my conviction there is good reason for it. It only takes a few hours for the mucous membrane to come together. You can take two loops of bowel in a dog or in a man and suture them together and put the patient or the dog under the influence of morphin, and if you open the abdomen under eight hours you will find a nice serous exudate. The sutures are all covered up, and for that reason I do not believe in doing gastro-enterostomy, but, if necessary, cauterize it gently. If you do not do that, put in a suture and reinforce it with another Lembert, put the patient to bed and, as the doctor has suggested, give him the Murphy drip, and my preference is sterile water, for the reason it

is absorbed more quickly than saline or soda solution, due to the osmosis. You get the effect from the fluid, and that is what the patient wants, and give him or her plenty of morphin.

Dr. J. L. Adams, Monroe: This paper is filled with too many important facts and is of too much significance to pass without our freely discussing it. It is a paper that is not only of interest to those of you who are associated with hospitals, but it is of interest to all of us, and for that reason it should be very freely discussed. I rise to emphasize one point, simply because it is not only applicable to surgical conditions of the stomach, but also to shock of all kinds. I was much pleased to hear the doctor say that, if the patient was depleted and exhausted, you should do all you can for him or her before you undertake to do a classical operation. Many a patient is lost, not only in this kind of work, but from all kinds of shock, because we are too anxious to do the operation at once. Put in drainage, allow the man a chance to get well, give him plenty of time, and you will have a better chance, and he will, too.

Dr. A. C. King, New Orleans: I would like to ask Dr. Kostmayer to go into a little more detail in closing the discussion as to the rupture of typhoid ulcers compared with hemorrhage. There is nothing else in the paper that I care to discuss, but I would like to know a little more about it.

Dr. H. W. Kostmayer, New Orleans (closing): In reference to rupture of typhoid ulcers as compared with hemorrhage, my observations lead me to believe that, with a ruptured typhoid ulcer, there is an immediate increase in both the neutrophiles and the total white cells present; whereas in hemorrhage into the bowel, as a result of the sloughing of the ulcer, there is no increase in the neutrophilic count nor any increase in the total number of white cells. There is subnormal temperature, and, if the patient has pain and vomiting, the rigidity of the abdomen is classical following a ruptured ulcer in the peritoneal cavity, whereas in ulcer of the stomach it is not.

SOCIETY LARGELY RESPONSIBLE FOR SOME OF THE MOST POTENT FACTORS OF NERVOUS AND MENTAL DISEASES.*

By J. CHESTER KING, M. D., Atlanta, Ga.

Mr. President and Gentlemen of the Louisiana State Medical Society:

I am happy on this occasion to meet the members of my profession in my native State and in the city where the foundation of my professional career was laid. It was here, in my early manhood, that I came in contact, as my instructors, with Drs. Chaillé, Souchon, Lewis, Jones, Miles and others. I learned to love and esteem them.

* Read at the 39th Annual Meeting, Louisiana State Medical Society, New Orleans, April 16, 17, 18, 1918.

They have been an inspiration in my work and an inspiration in my life. Tennyson has well said:

"I am a part of all that I have met."

Recently I have had the pleasure of attending several association meetings, and the spectre of our war stalks in their midst; so pardon me if I refer briefly to some of the phases before presenting my subject to you, which is closely allied to our national betterment.

During the Civil War physicians were non-combatants, for they enjoyed security vouchsafed by a national code, but in the present mad lust for imperialism nothing is sacred in the eyes of the ruthless Hun, for the sky, the sea and the undersea are used as instruments for their death-dealing missiles. The history of the nineteenth century will record an era of barbarism unequaled in the early dawn of civilization developed by the insatiable greed for world-power, of the imperialists of Germany, the country that once held the esteem and admiration of the world; but to-day the schoolyard of the English shire, with its hordes of romping children; the hospitals, with their sick and convalescents; the solemn church edifice, with its congregation of devout worshippers; the commercial liner at sea, laden with non-combatants and merchandise and peacefully-disposed passengers have become the unwarned targets of explosives.

Statistics show that the percentage of deaths among medical officers is greater than in any other war and that there are more physicians to-day with the Allies than there were soldiers and officers in the active American Army two years ago.

For this reason, your State meeting to-day overshadows any similar gathering of the past. The subject most potent to us as a progressive nation is, what are the means at our hands of developing a manhood and womanhood who are physically, morally and mentally fit to uphold the glories of our great country? Hence I present for your consideration, "Society Largely Responsible for Some of the Most Potent Factors of Nervous and Mental Diseases." And before discussing this theme I wish to state that, while a part of our brothers are serving the wounded, dead and dying, if we at home spread and enact the propaganda that will develop a higher and nobler race, when a glorious and permanent peace has been concluded and a grateful world-democracy seeks to bestow its laurels on those who brought it about and while honors will be freely ac-

corded to the artilleryman, the engineer, the navigator of the sea and the pilot of the air, a substantial and well-merited portion will accrue to the physicians.

It has been beautifully expressed by Kant:

"There is in every man a divinity, the ideal of a perfect man, conforming to the type according to which God fashioned, just as in a block of Parian marble an image of a Hercules or of an Apollo would be found if a divine artist had traced there, by means of the natural veins of the marble, the contour and form of the future."

This statue, it should be the aim of society, to free from the rubbish that conceals it, to evolve its form, to reveal to our consciousness this inherent ideal of divinity, enabling mankind to realize it by aiding the development of all of those germs and dispositions placed within us by God when He made man according to His own image and disposition, which constitutes our rational nature.

Instead of this condition existing, we see society encouraging imprudent speculation, intemperance and vice, augmenting the desire to gain wealth by speculation rather than by honest labor and virtuous efforts, converting our youth into idle vagabonds, filling our prisons and penitentiaries with defaulters, forgers, bank robbers, thieves and murderers.

Is the owner of your gilded saloon, gambling and drinking hells of New Orleans, however high he may stand in church and State, more holy or noble than the miserable, driveling drunkard who staggers into the hospitals or is committed to our asylums or prisons? Is it not a fact that society looks upon the vitality of the race and the health of the family in an indifferent mood? Our prisons and asylums bear testimony to the fact that the communication of disease in marriage is a matter between husband and wife, and society has nothing to do with it. Did the African slave trade, with its floods of poisonous rum and the untold horrors of the middle passage as conducted by the merchants of the New England States in the seventeenth and eighteenth centuries, yield finally any other result than the gigantic, bloody Civil War of 1861-1865, whereby the soil of the United States of America was drenched in the blood of persons and the entire land clad in the garb of sorrorw and mourning?

Can the heart of a great State, as revealed in her laws, be rotten and her children be pure, healthy and virtuous? What inducement is there to honest labor and virtuous endeavor, when the mother, a

leader in society, a woman of untold influence, spends the great part of her time, mentality and energy in what she terms innocent and instructive amusement, in being the victor of a prize at a bridge party that would equal in cost the heaviest losings at a $1 limit poker game during a sitting of four hours? In other words, she points to the gaming table and the deceitful smiles of chance as the royal road to caste, to wealth, to position in State and church.

The laws of the State are defective, society is rotten, when they do not consider man and his offspring from the following standpoints:

1. The development and perfection of the individual, physically, intellectually and morally, for time and eternity as an individual.

2. The development and perfection of the individual physically, intellectually and morally, with reference to his fellowman.

3. The development and perfection of the individual physically, intellectually, socially and morally with reference to his relations to his Creator in time and eternity.

As society should be the fountain of life and strength to the State and nation, we cannot have a law-abiding and united people, a vigorous and healthy national life, when the offspring is morally and physically defective. A wholesome respect for the sanctity and majesty of law must first be engendered in the heart of the boy and girl in their own home and by the father and mother who bore them. We cannot expect the development of a pure, healthy and noble race of women and men when the blood of the mother and father has been poisoned by the contagion of vice and the debasing effects of syphilis. Can the vulture breed the eagle? Can the jackal engender the lion? Can you have a double standard of laws? Can society condone in man what is unsparingly condemned in woman which it accepts as excusable in one and decrees to be unpardonable in the other?

With open doors and open heart the father of a family welcomes to the sanctity of his home men of political influence and wealth, but those whose lives are saturated with the iniquity of vice, born and nurtured in the company of immoral women.

Again, our fair debutantes are often the prey of titled foreigners whose lives have well been spent in riotous living. Exclusive society bids them a hearty welcome and social leaders vie with one another in their cordiality.

It is a well-established fact that "Whatsoever ye sow that shall

ye also reap," and it is up to the fathers and mothers of our land to see that the sowers of vice in all of the different phases which could be handed down be not transmitted to their daughters; for how often is it the case we, as physicians, see innocent wives and children the victims of venereal diseases and the husband and father is the bearer of his venom, which has left in its wake the wreckage of hope, of health, abortions and diseased children?

It has been well said:

"For social crimes and their pitiful consequences, masculine unchastity and the false social code which fosters and promotes it, are largely responsible."

If you ask me the remedy, I will say: Provide for the introduction of a bill which will require each prospective bride or bridegroom to furnish a signed statement attesting to the fact that the signer has not been afflicted with the specified social diseases for five years past. If afflicted within that time, it must be shown that the official test has been given with negative results. As an alternative, the applicant may present a health certificate showing himself or herself to be free of the illness. Take another step and have an examination of all barbers and waiters in the State, whether in restaurants or in soda fountains or elsewhere. In the larger counties of the State let there be free clinics, and in the hospitals, where people afflicted with the diseases might receive treatment and instruction. Let State boards provide for Wassermann tests. Keep a record of those men drafted who stated in their questionnaires that they were or had been afflicted with these diseases. Let the police of every city department round up male and female vagrants who may be the means of spreading the disease and subject them to an examination. Our State laws to-day impose, as a condition of its license to marry, certain regulations relating to the age and the degree of consanguinity of the contracting parties. Cannot the State go farther and demand, as a preliminary condition to granting a license, a medical certificate that both parties are free from any contagious sexual disease? It can impose a civil and penal responsibility for the transmission of venereal diseases in marriage. Get public sentiment aroused, for no law is stronger than the public sentiment behind it. All laws are based upon the rights of human beings, and no human being is justified in communicating his disease to another, whether intentionally or by criminal imprudence,

especially in the relation of marriage, where the victims are powerless to protect themselves.

The candidates for marriage should know the terrible consequences to which they expose their wives and children when they marry with an uncured venereal disease, so that the plea, "I thought I was cured," shall no longer be heard. Cushing has well said:

"The plea of ignorance should no longer be available to shield those who bring disease and death in their families, who ruin the lives of those they have sworn to cherish and protect."

Our knowledge of diseases that leave in their wake blasted hopes and ruined lives avails us little if we cannot utilize it. The knowledge which a man can use is the only real knowledge which has life and growth in it and converts itself into practical power. The rest hangs like dust about the brain or dries like rain-drops off the stove.

Let every man's standard of social morality be elevated. Proclaim to the world that the libertine cannot enter your home. Ostracize the social circles that entertain him. Do not absolve the male offender against immorality while condemning to social infamy the female offender. Health has ever been looked upon as the first of all blessings, and as immortal beings and as members of a profession which deals with immortal beings in their last extremities you cannot, if you would, shut your eyes to the importance of moral and scientific education.

We have three sources for the spreading of this education, viz: the press, the educators and the clergy. Is it being accomplished? Yes, scientific education is making rapid strides in the elimination of the social evils, but social hygiene has accomplished little.

To illustrate: In the great daily press of our country you see detailed on the front page in the most prominent type a disgusting account of domestic intrigue and the social ruin of some one of the inner circle whose life or lives have been ruined by venereal diseases. While the downfall has been vigorously painted to pander to the prurient and depraved taste of its readers, no mention is ever made of venereal diseases which have wrecked their lives. While I can appreciate the attitude of the press on this subject, yet is there not some inconsistency when it often speaks of prostitution, adultery and other violations of moral acts, yet it shrinks from speaking of a common pathological consequence that affects all humanity and is lowering the standard of our social atmosphere?

The clergy and educators stand in awe at the thought of impart-

ing to our young women and young men a knowledge of the hygiene of the reproductive functions.

Until there is a general awakening on the part of the medical profession and no longer venereal diseases are branded by another name; until society welcomes knowledge on this subject, which smites the innocent wife and her offspring; until the press wages a campaign of education against prostitution, the purveyor of this infection; until the ministry throws aside the false social code of morals, which is opposed to the moral code of Christianity, which condones in man what it condemns in woman, and until our high schools disseminate the knowledge of sex hygiene, we live in a day and time of science which is defective, for man is not comprehended in all the various relations of his physical, intellectual and moral nature. The great fields for this development of the human race are: (1) The family; (2) the church; (3) the physician; (4) the university.

The earliest education of all times is that of the family; it is the fountain of life and strength of the nation. Show me where it has been neglected and I will show you lives of physical woes, taunted nerves and mental deficiencies. From the earliest time the church has been the forerunner of education and the salvation of our race. The belief in the immortality of the soul and of a future existence, of pain or pleasure, in accordance with the good or bad acts of an individual, has been widespread at all times, and amongst most races, and has given form to beliefs and rights.

The scientific physician is the nation's guardian of public health. He is entrusted with the lives of his fellowmen; his life is spent in nearest communion with the sick and dying, in sight of the very gates of eternity. From a socio-biological point of view he is the most potent factor of all factors in emancipating from the social evil. To the most modest woman, without offending her most delicate sensibilities, he can speak of sexual life and its diseases; and how often he can forestall the shadow that has fallen over many a home and blighted lives with wrecked nerves and a tortured mentality. The highest type of the physician to-day is the moralist as well as the hygienist.

The material body of man, with its complicated machinery, appears to have been constructed with exact reference to the action of the intellectual and moral nature.

Ancient Greece gave us the heritage of an intellectual, moral and

political education. For the pure life, the health of body and soul, we point to Plato, the Athenian, the pupil of Socrates, whose works remain to this day the great models of Athenian genius, elegance and urbanity, and whose philosophy has been the admiration of all ages.

The thirteenth, fourteenth and fifteenth centuries witnessed the rise of great universities, and to-day the strength and bloom of our American nation are felt in the great power of its educational centers. Natural science and learning receive their most vigorous impulses from the scientific centers. Men of the greatest learning and research have celebrated the power and influence of universities upon the progress of civilization. So, to these powerful agencies, we must look for a healthful moral life. They must say to society, "Your code of morals must be clean." Social prophylaxis must be the password; licentious living, which is a companion of venereal disease, shall not be tolerated. Yet we know that society to-day welcomes to its ranks the libertine, who regards not the sacredness of the home circle nor personal purity or respect for the sacredness of the marriage vow, and scatters in his life the germs of infection.

Society owes it to God and our nation to hand down to posterity a vigorous manhood and womanhood, and thereby wipe out the great social evils—alcohol and syphilis—that are giving us a heritage of moral and physical weaklings and taxing our respective States for appropriations almost beyond endurance.

Conservatively estimated, there are to-day in the United States three-quarters of a million of insane and mental defectives, at an annual cost of about $110,000,000. And this does not include the border-line cases or epilepsy. The figures would hardly be exaggerated if we computed in each State the number of insane and those of weak mentality not cared for by the State, at the round figure of one million. And yet, one-quarter of this million are allowed to propagate their species, which, if we did not wage a moral, social, political and physical campaign against, history would in the course of time brand us as a nation once powerful, but now degenerated.

As students of difficult and useful sciences and practitioners of medicine, and as citizens of a powerful and free nation, which to-day is fulfilling a high political, religious and scientific mission amongst the nations of the earth, the medical profession's watchword must be, "Preventive medicine"; society's watchword must be, "Social hygiene ." The family is the unit of society of the village,

town, city, State and nation. From the union of man and wife and from the fruits resulting therefrom the nation has its perpetual fountain of life and strength. If the fountain is impure, the stream will be foul. Households founded and conducted in violation of the laws of hygiene are standing menaces to the public health. The syphilitic father not only breeds a syphilitic child, but places galling shackles on society.

The injurious effects of alcoholic liquors and narcotics have been thoroughly demonstrated by our profession. A ban should be placed upon it in society. While athletic and gymnastic sports are of great value to our young men and women, and should be encouraged, yet how often do we see their deadly work, by being too excessive or too violent or too rapid, and ailments following, which often fatally diminish or impair the nervous, muscular and vital powers. Many a young man has been sacrificed to over-exertion in the gymnasium and in the violent struggle for mastery in rowing, swimming and ball-playing. This but demonstrates that the American people, as a whole, are extremists and are prone to nervous disturbances. Educational institutions must conform their standards to the demands of public health service, teaching the youth of our land that the stronger race must protect the weaker, that the white race will always be the dominant factor of civilization, and that no greater crime could be concurred in or perpetrated in the annals of humanity than the amalgamation and mongrelization of a superior race with an inferior, or the political subjection of the former to the latter.

Then we shall be like the coral insect—helping to rear an edifice which, emerging from the vexed ocean of conflicting credence, shall be first stable and secure, and at last cover itself with verdure, flowers and fruits, and bloom beautiful in the face of heaven.

Discussion on the Paper of Dr. King.

Dr. S. M. D. Clark, New Orleans: I did not expect to discuss this paper. However, I have listened to it with a great deal of interest, but the doctor has touched on so many vital points that it is difficult to know where to begin.

One point in the paper that appealed to me as being along the right line was the one that parents are ill-disposed to discuss sexual questions with their children. We know that most daughters coming to womanhood are absolutely ignorant in every way as to what the menstrual phenomena mean, and as to what things they should do and what things they should not do to avoid trouble. This is still considered in a great many families a subject that should be forbidden, or that it is unlady-like to speak of it. I believe that we, as medical men, along with Dr. King

and others, should argue this question with mothers and do all in our power to overcome this impression—that our young men and young women should grow up in ignorance as to the sexual side. I believe with him that it is the duty of the doctor largely, especially the man in general practice, who is seeing these boys or girls coming into manhood and womanhood, to go to the father or mother and ask them if they have ever discussed this phase of this subject which leads to so many ills, and in the vast majority of cases you will find the father will say, "I do not think I can discuss that with my son"; or if you go to the mother when the girl is on the eve of her menstrual life and say, "Have you not discussed that with her, or does she know anything about it?" the mother will very likely say, "I hardly know how I can do it." A young girl or boy can live just as pure a life by having these matters properly explained to them as if they had never heard anything said about it. They would be just as pure in their souls as if they had never heard a word said about it.

Dr. C. S. Holbrook, Jackson: I wish to thank Dr. King, in behalf of the Louisiana State Medical Society, for presenting such an interesting paper. I am sure he did not make his trip all the way from Atlanta to New Orleans in vain. No one could have listened to this paper without being profited by it, and I, as Chairman of the Section, wish to thank him again for presenting it.

VOMITING IN INFANCY.*

By L. R. DE BUYS, B. S., M. D., F. A. C. P., New Orleans.

Vomiting is the symptom which is most commonly met with in children. To simply enumerate the conditions in which it occurs would not be productive of satisfactory results. It shall be my endeavor to present this subject so that, when associated with other symptoms, the proper cause of the vomiting may be ascertained.

Children vomit more readily than do adults: (1) because their nervous system is more unstable; (2) because of the changes in the growth and development of their digestive tract; (3) because of their susceptibility to disease.

Vomiting may be considered from two viewpoints: (1) Mechanical, and (2) Nervous.

Mechanical explanation: (1) a deep inspiration; (2) closure of the glottis; (3) contraction of the diaphragm, and at the same time; (4) opening of the cardiac orifice of the stomach by contraction of the longitudinal muscular fibres, followed by (5) violent

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expiratory contraction of the abdominal muscles, the glottis remaining closed and the diaphragm contracted.

Nervous explanation: The various impulses may be best considered as starting from a vomiting center in the medulla. They are dispatched from this center to the diaphragm by the phrenic nerves, to the stomach and esophagus by the pneumogastric, and to the abdominal muscles by the intercostal nerves.

This center may be excited:

(1) By direct action on the mucosa of the stomach;
(2) By reflex stimulation through the peripheral nerves;
(3) By direct stimulation of the blood;
(4) By impulses from parts of the brain higher up.

In considering the causes of vomiting, the writer submits the accompanying classification as being both easy to remember and practical.

The associated symptoms and history in the toxic, nervous, febrile and mechanical causes of vomiting as classified above will very readily allow of a prompt and accurate determination of the individual cause of the vomiting.

As the subject is such a vast one, the allotted time will not permit of an exhaustive consideration of it. By remembering, however, the above classifications, we may more promptly determine the cause of the vomiting in a given case.

The purpose of this paper is to deal more particularly with the vomiting as related to the digestive tract, and especially of those occurring during the first few days and weeks of life.

The inflammatory digestive causes of vomiting are easily recognized from the symptoms referable to the stomach, intestines and peritoneum, respectively. As are also the obstructive organic causes, with the exception, at times, of stenosis and atresia. Bismuth or barium and the X-ray are of extreme value in these cases. In the malformation, malposition and dilatations the X-ray and bismuth or barium are indispensable and will permit of a positive diagnosis. The functional stomach causes are also easily recognized and can as readily be cared for.

This would leave, then, for our consideration, stenosis, atresia and feeding as the causes of vomiting.

In studying these cases the history must be carefully gone into. It is essential, in breast-fed babies as well as bottle-fed babies, to determine what the composition of the milk is, also the quantity

- Digestive tract
  - Functional
    - Feeding
      - Too much
      - Too frequent
      - Improper feeding
      - Too fast
      - Too slow
      - Irregular
      - Handling
      - Shaking
      - Tight binder
      - Position
      - Gas collection
    - Stomach
      - Eliminative
      - Fermentative
      - Indigestive
  - Organic
    - Malformations, malpositions and dilatations
      - Esophagus
      - Stomach
    - Obstructive
      - Stenosis, Atresia
        - Esophagus
        - Pylorus
        - Intestines
      - Within lumen
        - Foreign bodies
        - Impacted feces
        - Worms
      - Intussusception, volvulus, hernia
      - Pressure from without
    - Inflammatory
      - Stomach
      - Intestines
      - Peritoneum
- Toxic
  - Drugs—Anesthetics, apomorphin, etc.
  - Digestive—Ptomaine poison, constipation.
  - Metabolic—Acetonemia.
  - Eliminative—Uremia, etc.
  - Acute disease—Diphtheria, etc.
- Nervous
  - Functional
    - Violent emotions
    - Exhaustion
    - Excessive cold and heat
    - Hysteria
    - Migraine
    - Recurrent vomiting
  - Organic
    - Tumors
    - Meningitis
    - Hydrocephalus
    - Concussion.
  - Reflex
    - Eye, ear, nose and throat
    - Teething
    - Disturbed equilibrium.
      - Vertigo
      - Swinging
      - Sea-sickness
      - Car-sickness
    - Irritants in the stomach and intestine
    - Genito-urinary
    - Worms

Febrile—Chiefly toxic.
Mechanical—Whooping-cough, habit.

at each feeding. The feedings should be at regular intervals and the same hours every day. The food should not be given too fast nor too slow. The binder should not be too tight, nor should there be any pressure over the abdomen which will interfere with the normal increased size of the stomach incident to feeding. Remembering the condition of the baby's stomach, he should not be handled nor shaken after feeding, because of the ease with which the stomach can be emptied by vomiting. It is not to be forgotten that there is normally some gas in the baby's stomach, but it may be in excess. In these cases the baby may be allowed to expel the gas in the middle of the feeding by being placed in the proper position—namely, by holding the baby at an angle of about sixty degrees, with his left side up and leaning the baby slightly forward. When the excessive gas is expelled the feeding may be resumed.

If all these precautions are taken and the vomiting continues, further observations must be made. In regard to the quantity, the capacity of the average baby's stomach at the different stages must be remembered. Of course, some babies' stomachs will normally hold more and others less. It is essential to know the composition of food. The fats and sugars of the three elements in milk are the greatest causes of vomiting. The sugars may give rise to fermentation and the vomiting may take place any time in regard to the feeding and the odor of the vomiting will be sour. When the fats are at fault, the vomiting takes place some time after the feeding, one hour or more, and may be curdled or of a watery consistency. In too great quantity, the vomiting is as the food taken and is right after the feeding. From handling or shaking, or pressure over the stomach, the vomiting takes place at the time of handling, etc., and the character of the vomitus depends on how long after the feeding the vomiting occurs.

The weight of the baby is the best guide as to the gravity of the symptoms, for some babies vomit a little for a long period in their early months and grow and gain in weight.

There is another type of vomiting which may or may not be due to dietic error, and that is the vomiting associated with obstruction at the pylorus. The obstruction referred to may be either (1) functional, a pylorospasm, or (2) organic, an hypertrophic pyloric stenosis. In the former, by early recognition and proper regulation of the diet, the cases will get well and thrive. In the latter, the improvement of the patient will depend upon whether the hypertrophy

causes a partial or complete closure at the pylorus, and upon how much food goes through it and to what use the baby puts it. Both of these conditions give the same symptoms—namely, vomiting, peristaltic waves and constipation. Tumor is found in hypertrophic pyloric stenosis. The vomiting is projectile in character, the food often being thrown two or three feet from the baby and over the side of the crib. The quantity is frequently more than that taken at the meal it follows, some of the food at times remaining in the stomach from a previous feeding. The character of the vomitus is usually the same as the food taken. To these symptoms is added the peristaltic waves, which is the evidence of nature's effort to force the food through the pylorus. After the food taken overdistends the stomach the air-ball in the stomach becomes compressed, and in a pneumatic manner causes the food to go in the direction of least resistance—namely, through the cardiac end of the stomach, and is violently thrown through the mouth and nose to the distance mentioned above. At no time in life does promptness in diagnosis influence the prognosis more, as one of these conditions, the hypertrophic stenosis, if complete, is a surgical measure, and the earlier recognized the better the patient's chances. The indications for operation will depend upon the degree of the obstruction, the amount and quality of food which goes through the pylorus and the use to which it is put, and the loss of weight. The use of bismuth or barium in conjunction with the X-ray, as shown in a previous paper,[1] is of special value in the differentiation between pylorospasm and hypertrophic stenosis, and in another paper[2] the treatment of pyloric obstructions has been considered.

1. The Rœntgen Ray in Pyloric Obstruction. *Am. Jour. Dis. Child.*, November, 1913, Vol. 6, pp. 344-354.
2. Pyloric Obstruction: Hypertrophy and Spasm, with Moving Pictures Illustrating Peristaltic Waves. *Pan-Amer. Surg. and Med. Jour.*, November, 1916, Vol. 21, No. 11.

ON SOME MINOR MATTERS.*

By HENRY DICKSON BRUNS, M. D., New Orleans.

In these tremendous times, things that we have been accustomed to regard as important have shrunk to such pitiful smallness, that we cannot bring ourselves to treat them seriously. By contrast, very

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small things have come to seem larger than they did. It is only the every-day routine that can claim our attention.

It is impossible, then, to write on any important question in ophthalmology. I shall take the liberty, therefore, of commenting to you upon some minor matters that I have had in mind for a long time.

First, I wish to say a word in defense of an old and valued friend. I see that it is the fashion now in many quarters to "turn the cold shoulder" upon the ophthalmometer of Javal. When I read, "I do not pay much attention to the ophthalmometer nowadays," and I remember the many weary half-hours it has saved me, and the confidence in the correctness of my findings it has given, I feel stirred to protest.

But only, be it understood, if we are speaking of the original instrument with the large, geometrically lined and figured disc which, together with the mires, is observed reflected upon the patient's cornea through the bi-refringent telescope.

For the instrument with the self-illuminated mires, I haven't a word to say. It is an excellent example of a proposition I am fond of supporting—that all progress is not improvement. Illumination of the mires has undoubtedly made them more distinct and enabled us to define their reflection on the cornea more exactly; but that is all. The valuable principle of the Placido disc, so beautifully carried out in the old instrument, has been abandoned. The moment we placed our eye to the ocular of the old instrument we were struck by the slightest irregularity of the corneal curve, wherever situated, by the distortion produced in the image of the disc. Minute scars—nebulæ—that might otherwise have escaped our notice, were infallibly detected. In the same way it has often happened to me that I noted a degree of nystagmus that had not caught my eye upon mere inspection.

Furthermore, as a detector of the patient's sense, lack of silly nervousness, and self-control, more valuable information can be gathered from this instrument than we are able to get, very often, at the expense of half an hour's talk; and nowhere is the old apothegm: "It is just as important to know the kind of patient the disease has as to know the kind of disease the patient has," truer than in our practice, and perhaps especially in refractive work.

Finally—but here I admit I am not on as firm ground—if one is careful about placing his patient's eye at practically the same point

in the face frame, so as to view every eye under substantially the same illumination, the brightness and clearness of the reflected image conveys a certain indication of the nutritive condition of the cornea. We all know how bright and clear is the image seen upon the cornea of youth; but one may think twice when he finds it replaced by an unexpected dulness, or discovers to his surprise a youthful brilliancy outlasting middle age.

But my main contention is that, well used, the ophthalmometer is an instrument of remarkable precision. Trouble in working out the refraction of an eye comes mainly in determining the amount and the axis of any existing astigmatism; that, theoretically, the ophthalmometer, if adequately illuminated and adjusted, will show by the continuity of the mire lines and by the overlapping of the mire steps, the two principal meridians of the cornea, and the difference between them, cannot be denied; the problem is one of physics.

It follows, therefore, that if the illumination be so carefully arranged and regulated as to give always a sufficiently bright image, and if the observer, having keen, correct eyesight, by patience and practice acquires the skill to judge the continuity of the central lines on the mires and the accurate approximation of their edges in the first position, and the corresponding continuity of the lines and the overlapping of the mire-steps in the second position, he will in every case attain to a close approximation of the degree and of the axis of the astigmatism, unless the defect be lenticular.

The practice I have always followed, of working out the defect, with few exceptions, in all patients of and under forty, under full atropin cycloplegia, and of late, in many between forty and forty-five under homatropin cycloplegia, has given me, I think, an excellent opportunity to judge the correctness of ophthalmometer readings.

When we come to the trial lenses and the test-types, which, when all is said, is our last court of appeal, we may have to modify the amount of the cylinder by a quarter or a half a diopter and the axis by a certain number of degrees, but this is true of any other means of approximation.

I believe, then, that, when on the first sitting, after finding the acuity of vision and the state of the muscle balance, we make a careful ophthalmometer reading and proceed to determine the total manifest cylindrical error, if any, checking our results by the use of the stenopaic slit in many cases, and go on to find any existing

manifest spherical defect, we have adopted the quickest and surest method of arriving at as fair knowledge of the patient's defects as is possible without the use of a cycloplegic. For a thorough knowledge, cycloplegia, and I believe atropin cycloplegia, is necessary, as I have said, in the great majority of young people. But in many of the middle-aged, in those well above middle age, and in a certain number of young people with high errors, *without tropias,* this is all that we need know for the time being. For, in such patients, months and perhaps years will be necessary to lead them gradually to accept their full correction, or that large percentage of their full corrrection compatible with the state of their muscle balance.

Nothing of this applies, however, when a myopic element is present; in no case of myopia, or mixed astigmatism, I believe, can we dispense with the exact knowledge of the error only to be obtained by measurement under thorough cycloplegia.

In the first place, we are almost sure to make the concave glasses over-strong, and in the second, where the defect is low, either wholly or in a single plane, we are likely to commit the serious mistake of giving a simple or compound concave glass or of introducing a concave element, where emmetropia or low hypermetropia exists.

Perhaps I may close these rather prolix remarks by citing a case lately under observation. A man of 55, whose formula had always been

$$+0.50s \bigcirc + 0.50c \text{ ax } 90°$$

in each eye, needing a change of glasses, was found to require a cylinder of

$$-0.75 \text{ ax } 15°$$

to bring the vision of his L. E. up to the normal 20/20. This was incorporated with his left near glass, and for some years he got along quite comfortably.

At the end of this time another change in the reading glasses being needed, and a great many attempts having failed to give satisfaction and relieve a slight but persistent headache, the patient was persuaded to allow the adequate use of homatropin, and the astigmatism of the L. E. was found with the retinoscope to be

$$+0.75c \text{ ax } 105°$$

the use of this cylinder on his left near eye-glass, together with a slight increase in the spherical (presbyopic) correction of the R. E., gave entire relief.

A review of the record showed that the astigmatic defect of this

L. E. had been read with the ophthalmometer and recorded by my colleague, Dr. Robin, four years before, as exactly +0.75c at precisely 105°; thus showing the precision of the instrument in good hands, and that without a cycloplegic we may be deceived about a myopic error, even in a subject well beyond the half-century mark.

Secondly, I wish to express rather more than a doubt as to the validity of the position now held by boracic, or boric, acid in ophthalmic therapeutics. Upon what grounds does this substance hold its place? Not, surely, as a soothing application. Any one who drops into his eyes a little of a saturated solution—about fifteen grains to the ounce, and the weaker solutions are not worthy of discussion—will at once be disabused of such an idea. The instillation is followed by a rather disagreeable smarting, lasting a few seconds, then by a brief sensation of slight discomfort. As the secretions of the eye are alkaline and even a slight degree of acidity is foreign to the conjunctiva, this might have been anticipated. But this slight disagreeability might well be overlooked if the acid were a good astringent, or, still more, if a valuable antiseptic; for an addition to our list of antiseptics usable in the eyes in adequate strength is greatly to be desired. Boracic acid has no pretense to astringency, and therefore is of no value in any of the hyperæmias. That it is a competent antiseptic, even in full strength, when used in the conjunctival sac, I cannot believe. I have never succeeded in subduing any of the staphylococcic, streptococcic, or pneumococcic infections of the eye—no, not even infections by the Koch-Weeks bacillus, by its use alone. Nor have I seen any of my confrères succeed, or even attempt to succeed, by such means. In a valuable table, in the work of McFarland on "Pathogenic Bacteria," to which I was kindly referred by Dr. Geo. H. Hauser, the "inhibition strength" of boracic acid is given as 1 in 800 for anthrax bacilli, but as 1 in 100 for putrefactive bacteria in bouillon: the bactericidal strength of a 1 to 30, about a saturated solution, is given for anthrax, typhoid bacilli, and cholera spirillum, as two to twenty-four hours. That is to say, that if we add boracic acid in the proportion of one to every one hundred parts of a bouillon containing putrefactive bacteria, we prevent their multiplication; and if we add this substance to a culture containing typhoid bacilli in the proportion of 1 to 30 we can absolutely bring about their death after a time varying from two to twenty-four hours. When, then, we moisten with a boric solution the pledgets with which we wipe

away the pus from an eye affected with ophthalmia neonatorium or drop a little of the same preparation two or three times daily into one showing a hyperæmia or a slight conjunctivitis, are we doing anything? Are we doing more than when we give a bread pill? For my own part, I much prefer a solution of borax; it is not acid, is a good mild astringent and an excellent cleanser or detergent—the best of all the household eye washes.

Finally: Is it not time that we should cease to see in reports of discussions of the etiology of this or that disease of the eye, expressions by serious men such as: The Wassermann reaction having proved negatitve, we can dismiss the idea of a specific origin. The reports of all investigators who have given especial attention to this question agree that in all cases of syphilis there are times when the reaction is negative. But if this were not so, have not all of us, as clinicians, observed many instances in which, while the symptoms, may be lesions, were unmistakable and indubitable, the report of the Wassermann test was negative? Is it not almost axiomatic that negative evidence is much less valuable than positive, and must not this be especially the case in dealing with a test in which, as all pathologists will be the first to admit, the personal equation of the tester often plays a considerable part?

A year or so ago a patient consulted me because it had been suggested that "eye strain" might be the cause of the serious and incessant headache from which he was suffering. I examined him carefully under full atropin cycloplegia and found a simple hypermetropia of 1 D. I expressed great doubt that so low and simple an error was the cause of such severe symptoms. In the course of conversation he maintained that it must be, as he had always been an extraordinarily healthy man save for an attack of syphilis some years ago, of which he had been entirely cured. Quite lately, he had had Wassermann tests by two different observers and both had proven entirely negative. It ended by my prescribing the +1s glasses, which he was to wear faithfully for two weeks and then report the result. In that time he reported that his headaches were growing steadily worse and were especially atrocious when he went to bed. I assured him that I believed his headaches to be syphilitic and begged him to try the use of a saturated solution of potassium iodide rapidly pushed up to the point of toleration. In a month he had reached 39 grains of K. I., t. i. d., and I heard that his headaches were gone.

Later, this patient suffered from "lightning pains" in the legs and these again disappeared under a thorough anti-specific course administered at my suggestion by his family physician. Let us, then, as serious men, put aside this easy opinion that if "a Wassermann" proves negative we must give up every suspicion of a specific etiology in any case; let us continue to improve the certainty and delicacy of our clinical observations and stand with courage by our convictions; let us not abandon wholly the power of logical thought, and let us cease to regard the Wassermann test as anything more than one factor—a valuable one, no doubt, if positive—in reaching the sum of our conclusion.

DISCUSSION ON THE PAPER OF DR. BRUNS.

Dr. C. A. Weiss, Baton Rouge: There is only one point in connection with this paper that I would like to speak of, and that is with regard to a negative Wassermann. Recently a patient, forty-six years of age, came to my office with a well-developed, ill-smelling discharge from the tonsil, deep down in the fossa. It was examined, and the spirillum and bacillus of Vincent was found. I treated it, and the local condition cleared up nicely. The woman told me at that time that her son at the house also had a sore throat. He unfortunately had left town. Six weeks after the original infection in the throat she came to me with the left eye congested and the iris murky-looking. The pupil was very much contracted; she complained of suffering intense pain at night, and in dilating the pupil with atropin there were found three distinct points of adhesion in the iris. I had a Wassermann made, and it was negative. I had another Wassermann, and it was still negative. I put the woman on anti-specific treatment and the condition cleared up. The eye condition cleared up, with the exception of the adhesions of the iris. She is taking specific treatment, but the eye condition cleared up completely.

An interesting feature in this case was the spirillum and bacillus of Vincent which we found in the scrapings from the tonsils. Is this a specific infection in the eye, is it a Vincent infection, or what is the nature of the infection? That is the only point I want to bring out.

Dr. Oscar Dowling, Shreveport: I desire to express my personal appreciation of this paper and to say that I know it will be appreciated more away from home than at home. Dr. Bruns is the dean of the profession, not only in Louisiana, but for the South, and his opinion is respected throughout the United States, and I am glad that I had the pleasure of listening to his instructive and interesting paper.

Dr. T. J. Dimitry, New Orleans: I would like to discuss this valuable paper presented by Dr. Bruns, and to say that I am fully in accord with what Dr. Dowling has said. I have gone a little further and have put Dr. Bruns down as the Nestor of ophthalmology of the South. I am compelled to disagree with many of the points that he has brought forward. What he said about the use of boracic acid I entirely agree with. I believe it is a sugar pill, and you are merely prescribing something that you really obtain no results from, and are still doing it. Borax, I believe, is far superior. I believe the combination that Dr. Bruns has

popularized in this section of the country is still a better mixture—namely, borax, boracic acid, with a little camphor water. This mixture is most soothing, most agreeable, most acceptable to the eye, but the way boracic acid is usually prescribed by the ordinary practitioner it is not soothing to the eye. Borax should be used by preference.

Unfortunately he did not mention anything as to argyrol. I wish he had done so, hence I am compelled not to say anything, because I believe argyrol is to suffer the same condemnation that we have given to boracic acid. It is not an antiseptic. It really does little good when instilled into the eye, and to be used as often and as freely as it is being used today throughout the country, I cannot agree with him. I would say that its substitutes are every bit as good, and at best the borax is equal to the argyrol.

With reference to the Wassermann test, during the week a man came to me with a keratitis. In ophthalmology we are inclined to be a little emphatic in our opinions and to make a diagnosis quickly. I said the man had a syphilitic keratitis, but the man said no; that two Wassermann tests were made by distinguished men and both were found negative. Then he said, "Now, doctor, are you convinced that I have not syphilis?" I replied, "Not at all," and the next day he consented to the administration of a dose of salvarsan, with magnificent results. This man may not have had syphilis.

Next, I would like to take up the instrument of Javal, the ophthalmometer, an instrument that is used for measuring the curvatures of the cornea, probably the most scientific instrument used in ophthalmology, an instrument of precision, exact in detail, most valuable, and one that we like to possess. Its value is about $125. The use of this instrument is a very easy means of obtaining the curvature or irregularities that have any comparison, one to the other, of the cornea, but that is all that can be claimed for it. It will measure for me the curvature of the anterior surface of the cornea. Valuable as it is as an instrument of precision, still we have at our disposal an instrument equal to it in every sense of the word, that is worth about 85 cents, and that is the retinoscope—an instrument that alone does not measure the curvature of the anterior surface of the cornea, but it measures the posterior surface of the cornea, and it measures the lens and any astigmatism that may be there, and, at the same time, measures the amount of hypermetropia or myopia that may be present. We can do it all at one time, and in the hands of an experienced man it is every bit as rapid as would be the ophthalmometer of Javal. I like the ophthalmometer; it is an excellent instrument, but the little retinoscope, in the hands of those experienced, has relegated it, and that is the reason for the instrument falling to the position it has now assumed in ophthalmology. It is well that we do not depend too much upon this instrument in doing our work—that is, the ophthalmometer—simply because we know that the retinoscope will measure exactly the degree of refraction in all—children, babies, infants—because at times we are compelled to fit glasses to infants, and if you are familiar with the retinoscope you can fit glasses to an infant. You can fit glasses to the infant, to the deaf and dumb, without having answers coming from them to you. It is the only exact method of getting the refractive condition corrected properly. As I have said, the ophthalmometer is a valuable instrument, but its value is less than that of the retinoscope.

Dr. Charles L. Chassaignac, New Orleans: I feel it my duty to em-

phasize one point in Dr. Bruns' paper, and that is with regard to the value of the Wassermann test. The subject is such a vast one that it would be impossible to go into the different phases of it, so I shall simply bring up three points, assuring you that my criticism does not tend towards trying to convince you that the Wassermann test is useless or has no value; but I cannot too strongly express my hope that you will be convinced that it is not the infallible test or sign that many take it to be to-day, in the profession and out of it. The first point is, we know on the best of authority, that frequently—I do not mean in a solitary instance—blood taken from a patient, has been divided into two equal parts, prepared in the same way, sent immediately to two different laboratory men, each one a man of ability and integrity, and yet the reports have been different, even to the extent of not minor degrees, because that is expected all the time, but even to the extent of sending an absolutely negative report in one, and in the other a very clear positive report. No comment is necessary. All the conditions are brought forward sometimes as an explanation of why the Wassermann test is not right in this and that particular case, and that has been done by good men on different occasions, with the result I have mentioned. That argument is unanswerable.

In the second place, let us take the most enthusiastic and the most optimistic valuation that is put on the Wassermann test, and we are told that it is between 80 and 85 per cent correct. Let us accept that. Of course, that is a large percentage, if you take the large number of people in the aggregate in a hospital. If you examine everything in a hospital, you can count on an approximate result, call it 85 per cent; yet, admitting that—and I have no reason to doubt it—when you are confronted with a patient at the time that you have nothing else to go by except the Wassermann, and that is the point I want to make, how can you tell whether that patient is one of the 15 per cent where it does not show correctly, or one of the 85 per cent that does show correctly? I defy you to explain. The Wassermann test has its value, but it is merely an added symptom. It reminds me of the story I heard of a man who was asked about the danger of a certain operation, and, in order to convince the patient as to the lack of danger, the doctor told him that it gave a mortality of one per cent. The patient said, "That sounds all right, but suppose that I am the one in a hundred that dies?" When you have a man before you, how can you tell whether he is one of the 15 or one of the 85, unless you have something else to go by? That brings me to the third and last point. It is on account of these two facts I have just mentioned that the laboratory men themselves, who naturally are the ones who attach the most value to the test proper, are preaching constantly and loudly for a standard to be adopted. In other words, they want to standardize the Wassermann reaction. Why? the answer is obvious.

Dr. Henry Dickson Bruns, New Orleans (closing): I would like to close the discussion by saying a few things that I did not say in my paper. These were but small points I have had in mind for a long time suggested by reading the reports of Ophthalmological Societies. When distinguished ophthalmologists say that a thing is so and so, it has been taken largely for granted that it is so. I want to encourage all my hearers not to subordinate their intelligence to anything of the kind. That was the reason I brought up these points in the way I did.

With regard to the Wassermann test, Dr. Chassaignac and I have long

agreed on that subject, but I was delighted to hear Dr. Parham and other men express the opinions that they did and come to the same conclusion regarding the Wassermann test as evidence of one kind in making up the sum total of your conclusions, but nothing more than that. You are not to throw overboard all your clinical experience because of the Wassermann test. I did not say anything about argyrol, yet I must disagree with Dr. Dimitry's propheey.

He missed the whole point that I made about the ophthalmometer. He took the same ground that many ophthalmologists have taken regarding the use of this instrument, and there is an important point he did not bring out. I know that the retinoscope is a good instrument, but it requires a cycloplegic, and you have got to use atropin or use repeated instillations of some other drug. You can use the ophthalmometer on a patient in the first five minutes and get a knowledge of the presence or absence of a most important defect. It is important at the first examination to determine the degree of astigmatism, and then, by adding the correction for the manifest error, you have an important guide to the glass you are going to give the patient ultimately. Take another class of patients, men of forty-five or fifty years of age; they often have a great deal more accommodation than you imagine. In many of these cases it is ticklish business to instil atropin into the eye. You may cause a glaucoma. I am chary about using atropin in the eye of a man who has reached middle age or over. I admit that it is necessary to use a cycloplegic in most cases, but the point is that you get with the ophthalmometer on first seeing the patient a vast amount of valuable information without ever having to put any cycloplegic in his eye.

BIOLOGICAL RESEARCH ON THE WOUNDS OF WAR: PHENOMENA OF PROTEOLYSIS IN THE WOUNDS OF WAR.*

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[647] It is a matter of common knowledge that the evolution of wounds is the resultant of two groups of factors: the phenomena of disintegration and the phenomena of neoformation of the tissues.

The phenomena of disintegration dominate essentially all the general pathology of the first stages of the wounds of war, the stages of "cleansing" (nettoyage).

The notions of gangrene, of development of germs in gangrenous tissues, of intoxication by the products of mortification and necrosis,

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etc., constitute the greatest part of the history of wounds of war in their first stages.

Now, these anatomo-pathologic processes which intervene then (necrosis, mortification, gangrene, disintegration, colliquation, etc.) ought to be classed in the same category with the bio-chemical phenomena of proteolysis—that is, of displacement of large albuminoid protoplasmic molecules by the proteolytic diastases. The object of this short and elementary review is to recall a certain number of data of physiology concerning these phenomena and to bring out some practical suggestions. Its aim, therefore, is to contribute to the establishment of a scientific basis for the rational therapy of the wounds of war.

[648] THE PHENOMENON OF PROTEOLYSIS.

It is known that all the albuminoids, even the most complex, are constituted by the union of molecules of amino-acids, which are like the foundations of the albuminoid structures. These amino-acids have a relatively simple chemical composition. They can be crystallized and dialyzed, and are non-toxic. Grouping themselves according to types infinite in variety, they produce polypeptids. In the degree that these polypeptids become complicated, they lose their capacity for crystallization and dialysis, they become colloids. The proteoses, the peptones with all their varieties still but litttle known, are the last intermediaries between the polypeptids and the albuminoids; in contrast to the amino-acids, these bodies are often very toxic.

In the phenomenon of proteolysis, the ferment attacks the albuminoid molecule, subjects it to a crushing which detaches fragments from it, some at the start very small (amino-acids), the others more voluminous (peptones, proteoses), which, in their turn, will be crushed into elements smaller and smaller, more and more capable of dialysis, less and less toxic.

Such is, briefly summarized, the work of the proteolytic ferments which result ultimately in transforming a colloidal mass of *protéïques* into a solution of amino-acids.

Proteolysis, then, is essentially a phenomenon of dissolving as to its result and a phenomenon of digestion as to its mechanism.

It seems useless to describe here the aspects of the dissolving of the mortified tissues of a wound. We will recall only two facts:

The first is this, that all proteolytic destruction of a tissue is

preceded by its coagulation. The coagulation of the blood and of the lymph is a phenomenon preliminary to their digestion, as Nolf has demonstrated. The coagulation of milk in the stomach by labferment precedes its digestion. The first sign of the gangrene of a muscle is the appearance of muscular rigidity, a process of coagulation: Prat has recently shown the clinical value of this symptom. Every coagulated tissue is destined for proteolytic destruction. Coagulation is its first phase.

[649] The second fact to be noted is this, the variable resistance of the tissues to the proteolytic attack. The fibrous, and especially the elastic, tissues are very resistant. The muscle, the blood and lymph plasmas, the connective tissues are extremely sensitive. The histologic transformations of the striated fibres in a muscle undergoing mortification are exactly co-extensive with those which have been described in intestinal digestion. The striation of the fibre remains extremely clear for a long time, by reason of the persistence of the small disk, which is very resistant to proteolysis.

The bony tissue, the parenchymas, present reactions quite special with regard to proteolysis.

The Proteolytic Diastases.

Proteolysis is the work of diastases, the proteolytic diastases or proteases.

1. The proteolytic diastases are not of one single type, but of a great number of types. Some attack thoroughly the *protéiques,* breaking them up almost completely into amino-acids. Other diastases do not push the disintegration (broyage) beyond the peptones. These are broken up in their turn, but by other ferments (peptolytic ferments).

All this subject is still under investigation. For the problem which occupies us, the important point to be kept in mind is that of the plurality of the proteolytic diastases.

2. In order to act, the proteolytic diastases require certain well-defined conditions.

The importance of these conditions of action of the proteolytic diastases is a capital element which would merit a long exposition. Among these conditions, it is necessary to note as specially important:

(a) *The Temperature.*—In general, the proteolytic phenomena are correspondingly more active as the temperature approaches more

nearly to about 40° C. There will be a difference of evolution of the phenomena of necrosis in a wound, according as it is located at the level of a healthy extremity with normal temperature, or at the level of an extremity with temperature lowered by a vascular lesion. One will be able to nullify almost completely the proteolysis of a wound by application of ice, as one will be able to promote it by hot applications. Between 60° and 70° the proteolytic diastases are destroyed; one will be able to make a phenomenon of this order intervene in the explanation of certain effects of heliotherapy and of hot air.

(b) *The Content of Water.*—Water is indispensable to the progress of a fermental action. In a dried wound, no phenomenon of proteolysis is produced.

(c) *The Aërobic or Anaërobic Situation.*—Proteolysis is produced essentially in an anaërobic situation.

(d) *The Reaction of the Medium.*—One knows that pepsin acts in acid medium, trypsin in alkaline. According to the acid, neutral or alkaline reaction of the medium, the same ferment will furnish a different chemical effect.

(e) *The Antiseptics.*—They have practically no action on the progress of the diastasic phenomena. This fact has a certain practical importance. By the addition of an antiseptic to the tissue reduced to a pulp, one will eliminate the action of the microbes without destroying the diastasic action; it is a classical procedure in physiology. We can keep in mind this fact, that the proteolysis in a wound will not be disturbed by the use of antiseptics.

3. The proteolytic diastases which intervene in the wounds of war are of variable origin.

(a) In the first place, the *tissues* themselves. A fragment of muscle, aseptically removed and preserved in the oven, is liquefied in consequence of its own proteolytic diastases. It is the phenomenon of autolysis, the rôle of which is so great in pathology. Contrary to the general belief, autolysis, properly so called, plays a feeble rôle in the evolution of the wounds of war, especially if this rôle is compared to that of the leukocytic or bacterial proteolysis. The most elementary observation shows that there is a profound difference in the mode of resorption of a fragment of mortified muscle without there having been rupture of the skin and infection, and the gangrene of the same muscle exposed to the air. Autolysis, particularly that of the muscle, which interests us specially, is, in the wounds of war, a slow, accessory phenomenon.

(b) The polynuclear neutrophile is the sole great agent of proteolysis in the wounds. It has been known for a long time that this variety of cell encloses extremely active proteases; some act in acid medium, others in neutral or alkaline medium. These pro- [651] teolytic leukocytic diastases are very energetic and non-specific; they push very far the breaking up (broyage) of the molecule, whether of their own albumin (case of autolysis of pus), or of other albumins (coagulated serum or white of egg, N. Fiessinger). The normal leukocytes only are rich in diastases; these are set free either by secretion of the living cell, or rather by destruction of the cell bursting, rupture). The maximum of proteasis is furnished by the rupture of normal leukocytes. These are facts which it is necessary to keep in mind.

(c) The plasma blood or lymph, offers proteolytic qualities truly inconsiderable, which should be referred in great part to the setting free of ferments by leukocytes, either living or in course of destruction. The serum contains peptolytic diastases which act exclusively on the peptones coming from the muscles of animals of the same species (Pincusshon).

(d) The microbes of the wound, especially the anaërobic ones, are the essential agents of proteolysis. The anaërobic germs which are responsible for the phenomena of necrosis and of gangrene belong to a rather large number of species. It is known that the question of plurality of anaërobic germs acting in the phenomena of gangrene is answered to-day in the affirmative. With some appearance of reason, one has been able to classify all these germs, which are butyric ferments, in the same group: that of the *Bacillus Welchii* (Simond). Besides their common botanical characters, they possess all the biologic qualities of the same order; they furnish diastases which attack the carbohydrates, the fats (saponification—that is, the setting free of fatty acids, the *protéïques* substances. Their reducing action on the *protéïques* is not, in general, pushed very far; in the course of the diastasic there are formed proteases, intermediate basic products (ptomaines), all alike very toxic; the amino-acids undergo a reduction; by loss of CO_2 and of amines, they yield acids (transformation of glutamic into butyric acid, for example). Proteolysis has taken on the character of a putrefaction. All these phenomena are still very inadequately known; their importance is, nevertheless, great, for they are one of the factors of the toxicity of anaërobic microbes; to the toxins properly, so called,

secreted by the germs, are added the toxins [652] resulting from the attack of *protéïques;* among them it is often impossible to establish a distinction.

CONSEQUENCES OF PROTEOLYSIS.

These phenomena of proteolysis, the agents and conditions of which have just been considered, play a capital rôle in the evolution of wounds.

1. In the first period of the evolution of a wound of war, proteolysis fulfills a useful rôle, and ought to be favored within the following limits:

All the tissues stricken with death, from the fact of direct traumatism or by reason of vascular troubles, ought to be eliminated. "Surgical" elimination represents a procedure of choice. Outside of that, there is only the natural process of the diastasic liquefaction.

Autolytic proteolysis seems to be secondary. The proteases of the tissues play a rôle, but that is infinitely feeble compared to the leukocytic and bacterial actions.

The real agent of the cleansing (nettoyage) of the wound is the polynuclear neutrophile leukocyte. Contrary to the general belief, it seems that the phagocytic rôle of the leukocyte may here be secondary; its essential function is its digestive power. As we have seen, this power is very extended, and leads proteolysis up to simple, non-toxic products.

Bacterial proteolysis contributes indeed to the decomposition of the necrosed tissues. But the special characters of this proteolysis, with production of proteoses, of toxic amines, etc., are such that it is necessary to avoid it at any cost. It would be interesting to apply here the fruitful method of Metchnikoff in the search for a germ, proteolytic without toxic power, which, planted on a wound, would succeed in dominating all the other germs and in digesting the dead tissues without producing toxic proteoses. The question is far from being impossible of solution.

These biologic facts permit some practical deductions.

The treatment of the wounds of war *at their beginning* by artificial and aseptic digestive juices (pancreatic juice, gastric juice) is [653] theoretically justified. It is for the clinic to test this out in actual practice. For that matter, digestive mixtures (enzymol) have recently been introduced by American firms with this

therapeutic end. It seems that attempts of this order have been made in the German army; we are ignorant of their results.

This very great importance of the leukocyte explains the good effect of leukogenic medications (serum of the horse, for example) at this initial period of the wounds. It explains also this excellent and very ancient clinical fact, that the appearance of fresh pus in a wound threatened with gangrene indicates a favorable prognosis. It is quite precisely the notion of the "benign pus" (pus louable). It is known that this pus appears among healthy tissues and mortified regions, and that the decomposition of these latter very quickly follows the appearance of the pus.

A point which may appear paradoxical at first sight is this, that it does not seem useful that the leukocyte be specially protected; it it known (Metchnikoff) that it is in destroying itself that it frees the most ferments. The essential thing is its arrival at the level of the wound. Bérard and Lumière have recently supported an analogous idea, asking "whether the leukocytic destruction is always unfavorable to the struggle of the organism, and whether even the principle of the thesis which contends that the phagocytosis be treated with care is not debatable." This presents a point of view quite new and fruitful.

Finally, the theory justifies the rôle of the antiseptics which prevent or disturb the development of the germs, especially of the anaërobic ones, without injuring the leukocytic afflux or the fermental actions. It seems quite accessory, whether it preserves the leukocytes. The hypochlorites (liquid of Carrel-Dakin) have a very energetic decomposing action on the white corpuscles (N. Flessinger). They favor proteolysis while disturbing the development of the germs.

Thus, at the beginning of the evolution of a wound of war, proteolysis seems like a useful phenomenon, on the condition that it be quite localized topographically, and be very complete chemically.

2. Proteolysis, useful at the beginning, is, on the contrary, extremely detrimental at the moment of the repair of the wound. It disturbs the development of the young connective tissue, the essential organ for the filling up of the wound.

[654] In the wounds at this stage, proteolysis from the doings of the microbes is diminished. The wounds are slightly infected and that by aërobic germs slightly or not at all proteolytic.

On the other hand, the digestive action of the leukocytes is note-

worthy; this injurious action counteracts (compense) the useful phagocytic action. The histologic examination of numerous healing granulations has permitted us to see very clearly that the vitality of a granulation was inversely proportional to the quantity of leukocytes which it contained. It is the polynuclears which are the agents of the very frequent necrosis of the healing granulations. There is a direct relation between the presence of an exudate (pus) and the volume of the granulations (edematous granulations filled with leukocytes and in the course of destruction). These phenomena of necrosis are that much more intense as the leukocytes are less alive; it is known that the proteolytic ferment is specially freed by the destruction of the leukocyte.

These facts of pathology entail the following consequences of practical character, and are applicable exclusively to the repair of the wounds:

It is necessary to exert one's self not to destroy the polynuclears, a destruction which would increase the production of injurious proteolytic diastases. For this reason, among others, the antiseptics are to be rejected and isotonic solutions to be employed if irrigations are necessary.

It is useful to restrict the arrival of the leukocytes. Unfortunately, the practical therapeutic means are lacking for putting this point of view into use; it would be interesting to study methodically the means of realizing the arrest of the leukocytic afflux so injurious at this stage.

The results obtained with leukogenous medications are explained; the serum of the horse, under the influence of a leukocytic afflux, by digestion of the surrounding tissues, brings about the mobilization of deeply lodged foreign bodies (Bassuet), but it also has a deplorable effect on the evolution of the wounds (Mouchet).

The leukocytic proteases are destroyed toward 65°; it is possible to explain in this manner the very remarkable action of heliotherapy and of hot air on the suppurating wounds.

3. In connection with the phenomena of proteolysis is opened the question of intoxication in the wounds of war. It is known that the wounds are quite frequently more intoxicated than infected. Among the initial products [655] of the breaking-up of the albuminoid molecule a certain number are toxic; peptones, proteoses, amino-products, etc.

Absorbed by the venous or lymphatic system, these bodies inter-

vene in the general intoxication of the organism, thus adding their action to the toxins, properly so called, secreted by the microbes. The works of Jobling and of Strouse have instructed us on the toxicity of the secondary proteoses, the proto-albumoses; we begin to-day to know the importance of proteosic intoxication. These phenomena of intoxication are at the maximum in gangrene, because, in addition to the bacterial toxins, incomplete proteolysis by anaërobic germs brings into play a great quantity of toxic proteoses. Kenneth Taylor has insisted on the rôle played by the autolytic poisons in gaseous gangrene. It seems that one can go still farther and assume a toxic factor of proteolytic origin in every wound of war. One can recall the phenomena of toxic order *chez lex vieux suppurants*. There is nothing else here than the application of a classic law of general pathology.

These phenomena of intoxication are not only general, but also local. Locally diffused, they prepare tissues not primarily injured to undergo the action of the proteolytic diastases; they are the agents of the extension of the necrotic phenomena. It may seem that it is in part by preventing such an absorption that the lymphatic drainage realized so well by the hypertonic solutions (Wright's solution, sea water, etc.) has its effect.

In relation to the toxic action exerted by the products of proteolysis, it is good to recall that certain antiseptics, in particular the hypochlorites, manifestly play a rôle destructive of the toxins by their oxidizing power (A. Lumière). A probable explanation can be given in no other way of certain facts which one can observe in the method of treatment of wounds by the solution of Dakin (Carrel); for example, those of the wounded without hyperthermia, in spite of a considerable extension of the phenonena of necrosis; in these cases one has the very clear impression that the hypochlorites do not act solely by destroying the germs, but by oxidizing and [656] suppressing the toxins productive of hyperthermia and born of the bacterial or leukocytic proteolysis of the tissues.

The Antagonistic Actions: Anti-Ferments.

All the proteolytic acts of the organism are counterbalanced by the opposed action of anti-ferments, of antitrypsins in the species. The notion of anti-ferment of recent date is of capital importance in biology.

It seems almost demonstrated that the *supports* of the anti-

tryptic actions in the fluids are the lipoids, specially the fatty acids of the non-saturated series and their soaps (oleic acid). In the blood in the normal state these fatty bodies prevent the proteolytic ferments from acting; but if, for any reason or by any procedure whatsoever, they are removed or destroyed functionally, the proteolytic ferment is no longer masked; it comes into play, the *protéïques.* are digested and the products of their digestion (proteoses) bring about a proteosic intoxication of the organism (Jobling, Petersen, Eggstern). In this manner may be explained the accidents of the anaphylactic crisis, the phenomena of the crisis in the course of the acute maladies (pneumonias), the end symptoms of inanition, etc.

The notion of the antiproteolytic action of the fatty acids is very important in relation to the subject which is occupying us. It is by a mechanism of this character that must probably be explained the resistance of the healthy tissues to proteolysis; but this is only a hypothesis, as this point of the question still remains very obscure.

We have seen that, in gangrene, proteolysis was qualitatively limited, not extending itself very far beyond proteoses. It seems logical to associate with this fact the almost constant presence in these cases of fatty acids, free or in the form of amoniacal soaps. It is easy to verify the fatty character of the gangrenous products. These fatty acids, proofs of the action of saponifying diastases, intervene, disturbing the processes of proteolysis and favoring the production of peptones and of toxic proteoses.

There is perhaps a place for associating with the chapter of the antitryptic rôle of the lipoids the following fact, at least under the form of a hypothesis for study. [657] Certain wounds sometimes show themselves covered over with a thick coating, lardaceous, fatty, with the aspect of a false membrane. Histologically, it is a question of accumulation of leukocytes, many of which are in a state of fatty degeneration. At the level of this layer the phenomena of proteolysis do not seem to take place during a certain time. Then suddenly, frequently without the possibility of any therapeutic intervention whatsoever, this lardaceous layer is transformed into liquid pus; the phenomena of proteolysis appear, this layer is digested and liquefied. All takes place as if the phenomenon of proteolysis had been suspended, then suddenly brought into play again. We have been struck with the lipoid character of these lardaceous layers, and it is for this reason that we establish—in the form of a hypothesis, we repeat—a relation

between this fatty constitution and the momentary absence of proteolysis.

Finally, it might be demanded whether the excellent therapeutic action of ether is not connected with its rôle in dissolving fatty substances.

The rôle of the lipoid anti-ferments is certainly very great in the course of the evolution of wounds. This question, hardly half opened, deserves continuous biologic researches and therapeutic trials.

Conclusions of Practical Nature.

The facts which we have just set forth in outline demonstrate the importance of the phenomena of proteolysis. It dominates the general pathology of the wounds of war. All the efforts of the surgeon should, as far as this point is concerned, be directed toward two ends: limiting proteolysis topographically, pushing it as much as possible chemically. By obtaining this result one will suppress grave intoxication by the proteoses, and will avoid the development of the germs by causing to disappear the medium of culture formed by the products of the incomplete disintegration of the *protéiques*.

In order to activate this proteolysis, the most physiological means is to favor the arrival of the polynuclear, proteolytic elements par excellence.

[658] From these facts of the "mechanism" one should draw practical results. The majority have already received the consecration of the clinic; others, which might appear at the first view a little paradoxical, demand further study. The inadequacy and the instability of our conditions of work—unfortunately and whatever may be our efforts—have not permitted us to undertake researches in this direction. We hope that others will be more favored by circumstances.

1. During the initial period of cleansing of wounds the result to be obtained is to limit the proteolysis topographically, but to extend it chemically as much as possible, up to molecules the most simple, soluble and non-toxic.

Besides the eventual utilization of artificial digestive liquids, it is in place to favor the leukocytic afflux (use of serum, for example), the freeing of the proteolytic diastases (favoring leukocytic decomposition) and the chemical action of these (hot wrappings).

The use of antiseptics will prevent the formation of the bacterial toxins without injuring the leukocytic proteolysis.

The absorption of the intermediate toxic products of the proteolysis will be combatted by lymphatic drainage (hypertonic liquids), the frequent removal of the dressings, or aspiration.

2. During the period of filling up of the wounds, the proteolytic phenomena are to be avoided.

It would be useful to suppress the leukocytic afflux; unfortunately we have little control over this phenomenon. Researches in this direction would be of great interest.

On the other hand, it is easy to diminish the freeing of the diastases by avoiding the destruction of the leukocytes (no antiseptics, use of isotonic saline solutions, dry dressings).

The proteolytic diastases can be disturbed or even destroyed by heat (hot air, heliotherapy).

Such are the therapeutic suggestions which result from the physiological consideration which we have just set forth. They are in great part still theoretical; it remains for clinicians to demonstrate their practical value.

[659] We have believed it useful to call the attention of surgeons to these great facts of general biology. Their practical importance is considerable, for they condition a rational treatment of the wounds of war.

On many points our ignorance is still great. But it means progress achieved even to put these questions. It is to be desired that researches, laboratory and clinical simultaneously, should verify all these mechanisms still hardly half seen, and furnish the solid scientific foundations of a *physiological therapy* of wounds.

NEWS AND COMMENT

At a Special Meeting of the Executive Committee of the Eye, Ear, Nose and Throat Hospital, held June 24, 1918, a quorum being present, the following memorial was unanimously adopted:

"In Memoriam.

"It is with feelings of the deepest sorrow that the Board of Trustees of the Eye, Ear, Nose and Throat Hospital learns of the death of their beloved co-trustee and surgeon-in-chief, Dr. A. W. De Roaldes, who died at his residence June 12, 1918.

"Dr. De Roaldes was the founder of this hospital and served in

the capacity of surgeon-in-chief up to the time of his death. He was zealous in his efforts to advance and promote the interests of the hospital, which was always foremost in his thoughts, and under his guiding hand the hospital grew from the small, unpretentious clinic, with no equipment, to the splendid institution of to-day, which stands as a monument to him and challenges the admiration of all.

"The trustees recognize, in the death of Dr. De Roaldes, the loss of an invaluable adviser, and the poor have lost a dear and sympathizing friend, always ready to lend a helping hand and to relieve their sufferings and ailments.

"The hospital was the subject of his constant thoughts and untiring labor, and it is not only his advice and services which will be missed, but, even more so, the enthusiasm which he inspired to all connected with his work of love and charity.

"He was a man of unsullied principles, and his heart was full of the finest affections. In his intercourse with his fellowmen he knew but one rule of conduct, and he never was influenced by selfish motives.

"Dr. De Roaldes was known all over the United States and in Europe. His reputation as a surgeon was international, and he was the recipient of many honors from European governments.

"The Board of Trustees tender to the surviving members of his family sincere sympathy in their affliction, and direct that a copy of this memorial be given to the press and furnished to his widow as a feeble expression of the sentiments inspired in this momentous death.

"Jos. A. Hincks, Chairman.
"R. C. Lynch,
"E. A. Robin."

Medical Association of the Southwest to Meet.—The thirteenth annual meeting of the Medical Association of the Southwest will be held at Dallas, Texas, the middle of October. The Surgeon-General has been requested to send a number of strong men who have seen foreign service and who can give the news, first hand, as to just what the profession is doing and what it is not doing. A rousing patriotic meeting is anticipated.

Resolutions Passed by the American Medical Editors' Association.—At the last meeting of the American Medical Editors' Association, held in Chicago, June 10 and 11, the following resolutions were unanimously passed:

"*Be It Resolved—First:* That we pledge our renewed effort to Surgeon General Gorgas, of the United States Army, and to Admiral Braisted, Surgeon General of the United States Navy, and to the Medical Section, Council of National Defense, in that our pages are open to unlimited editorial space for properly approved

copy in which to bring before the medical profession of the United States the needs of these most important departments.

"*Second:* That an Editorial War Committee be appointed by the chairman, composed of H. Edwin Lewis, editor of *American Medicine,* New York; D. E. de M. Sajous, editor of the *New York Medical Journal,* and the president and secretary, to prepare copy and to energetically carry on this work.

"*Third:* That this Association contribute a sum of money, in addition to the appropriation made by this Society at its session, June 10, 1918, limited only to the resources of this Association, the expenditure of the amount to be decided by the Executive Committee for carrying on this propaganda of education and aid.

"*Fourth:* That the editor of every medical journal in the United States be invited and encouraged to participate in this very necessary work.

"*Fifth:* That copies of this resolution be sent to W. C. Gorgas, Surgeon General of the United States Army; to Admiral Braisted, Surgeon General of the United States Navy, and to the Medical Council of National Defense."

In view of the fact that the first and second vice-presidents are in military service, it was decided that the officers of 1917-1918 hold over until the next annual meeting.

Military education in medical colleges and the medical press, supporting the passage of the Dyer-Owen bill, educating the laity in reference to the zone system of mailing second-class matter, were some of the subjects discussed at the meeting and acted upon.

HENRY FORD $3,000,000 HOSPITAL.—One of the most complete hospitals in the world, largely designed for rehabilitating American soldiers wounded overseas, is being erected in Detroit by Henry Ford. Because of government coöperation in the purchase of materials, it is being erected faster than the average building is constructed in peace-time. The hospital is being built on a twenty-acre tract of land and will have a floor space of 50,000 square feet. It will comprise four stories, with a diagnostic building placed in the center, which will be six stories high. There will be 1,300 windows in the buildings, forty porches, and a roof garden. The institution is to cost $3,000,000.

LITTLE VENEREAL DISEASE AMONG TROOPS IN FRANCE.—The Army Medical Corps' figures, made public on July 12, 1918, state that venereal disease among the troops is being controlled both here and in France with remarkable success. "In France, with probably 700,000 men mobilized, the rate reported on June 13 showed less

than one new case per thousand men each week. Before the war the lowest rate in the regular army was double this."

Claim Cure for Gas Gangrene.—The *Chicago Tribune* announced recently that a special cablegram had been received stating that Prof. Vincent recently read a paper before the Paris Academy of Sciences in which he described a serum which he has prepared which has been effective even in severe cases of gas gangrene.

League of American Dentists' War Work.—The Preparedness League of American Dentists, comprising more than 15,000 dentists who have pledged themselves to give at least one hour of their time daily, including materials, to men selected for the army, navy and marine corps, reports that 50,000 free operations have already been performed. The league is supplementing the work of the army in making recruits dentally fit. There are 48,664 dentists in the United States and the league is trying to obtain a 100 per cent membership at $1 a year.

Twenty-Five Thousand Student Nurses Wanted.—The Council of National Defense finds that it has become necessary to call for 25,000 student nurses for training in American hospitals. The enrollment began July 29, and those who register will thereby be subject to call for training in the army nursing school or in the civilian hospitals until April 1, 1919.

A Drug Commission Asked For.—A resolution has been introduced into the United States Senate by Senator Frelinghuysen for the appointment of a commission of three to examine into the subject of narcotics and habit-forming drugs and appropriating $50,000 for the expense of the commission.

American Association of Medical Jurisprudence Dissolved.—The majority of the members of the American Association of Medical Jurisprudence have filed a petition in the Supreme Court of New York City for the dissolution of the association. The membership has decreased from 200 to 23 members, and there is said to be a general lack of interest in the organization .

Political Activity Forbidden to Red Cross Workers.—Under a ruling made by the War Council, the officers and workers of the American Red Cross will not be allowed to run for any public office in the coming general election, or be active in the interest of any candidate.

To Mobilize All Doctors.—A plan is under consideration whereby the government may assume control of the entire medical profession of the United States, in order to obtain sufficient doctors for the army and so to distribute those remaining that their services may be rendered in those places in which they are most needed. The plan will be to throw open the membership to all doctors, instead of enrolling in the Voluntary Medical Service Corps only those physicians not suitable for military service, either because of age, physical infirmity, dependency or institutional or public need. Conferences were held in Washington, July 18, and in a number of other cities, to discuss the operation of the voluntary enrollment plan. A plan is also being considered by the Surgeon Generals of the Army, Navy and Public Health Service for commissioning all teachers in the medical schools and assigning them to their present duties, for the purpose of preventing further disruption of medical teaching staffs and at the same time recognizing the public service of those men.

Women Anesthetists for Army Service.—For the reason that many wounded soldiers prefer the care and attendance of women, the army is appointing women anesthetists. Fifteen have already been appointed, receiving the pay and privileges of first lieutenants, without, however, the actual rank. Only graduate women physicians are elegible.

Gift and Home for Navy Hospital.—Commodore and Mrs. Morton P. Flint, of Brandford House, Eastern Point, Conn., have given to the Navy Department, for the duration of the war, the use of the Watson House for a hospital for convalescing sailors and soldiers. A gift of $10,000, to equip the hospital, accompanies the use of the residence.

Ambulances Named for Major Mitchell and Quentin Roosevelt.—The last of the 112 ambulances provided for service on the Italian front by the American Poets' Ambulances in Italy will be inscribed in honor of Lieut. Quentin Roosevelt and the 111th ambulance will be named for Major John Purroy Mitchell.

Columbia University Gets Estate.—The bulk of the estate of the late Major Eugene Wilson Caldwell, M. R. C., U. S. A., amounting to about $150,000, is to go to Columbia University on the death of his wife and mother. The sum which the university is to receive will be known as the Eugene Wilson Caldwell Fund and is to be

used for general educational purposes. Major Caldwell bequeathed his laboratory and its contents to Dr. Harry M. Imboden and Thomas Riker, his friends and collaborators, with the request that they continue the work upon which he was engaged.

OBSTETRICIANS AND GYNECOLOGISTS TO MEET.—The thirty-first annual meeting of the American Association of Obstetricians and Gynecologists will be held at the Hotel Statler, Detroit, September 16 to 18, under the presidency of Dr. Albert Goldspohn, Chicago. Dr. James F. Davis, Detroit, is chairman of the committee of arrangements.

PERSONALS.—Dr. Chas. Chassaignac and family left for Balsam, N. C., the early part of the month, for a three weeks' vacation.

Dr. Marcus Feingold, after a month's stay at Clifton Springs, N. Y., is now in Denver, Colo., where he will remain for several months. Dr. Feingold is rapidly regaining his health, and will no doubt be able to return to his practice and college duties this fall.

Dr. Geo. H. Meeker, dean of the Graduate School of Medicine, University of Pennsylvania, visited New Orleans and Tulane College of Medicine during the month in the interest of his school.

Capt. C. Jeff. Miller, M. R. C., has obtained a leave of absence for a much-needed vacation and will spend a few weeks in the East during September.

Dr. Peyton Randolph, of Georgetown, Texas, a graduate of Tulane, Class 1914, is now serving a commission "Somewhere in France."

Dr. S. M. Blackshear (New Orleans), first lieutenant, M. R. C., left during August for Camp Shelby, Miss., where he will remain until called for foreign service.

REMOVALS.—Capt. Walter N. Moore, M. R. C., from Lisman, Ala., to Camp Gordon, Ga.

Dr. W. B. McDaniel, from Byars, Okla., to Maysville, Okla.

First Lieutenant T. F. Batson, M. R. C., from Base Hospital, Camp Beauregard, Alexandria, La., to Base Hospital No. 86, Camp Logan, Houston, Texas.

The Modern Hospital Publishing Company, to Garland Building, 58 East Washington street, corner Wabash avenue, Chicago.

Among the doctors of New Orleans who have returned from their vacations and resumed their practice are: Drs. Abraham Mattes, 602 Perrin Building; Solon G. Wilson, E. J. Richard, W. A. Gillaspie.

The following are some of the Louisiana physicians who are serving on duty in the various camps:

At Camp Beauregard, Alexandria, La., Base Hospital: Capts. Maurice J. Couret, William M. Leake, New Orleans; Lieuts. Amable A. Comeaux, Gueydan; William T. Patton, Paul T. Talbot, New Orleans. For duty, from Fort Oglethorpe, Lieut. John C. Chapman, Colfax.

At Camp Lee, Petersburg, Va., for duty from Camp Dix: Major James B. Guthrie, New Orleans.

At Camp Sheridan, Montgomery, Ala., for duty from Fort Oglethorpe: Lieut. Allen B. Wheelis, Marion.

At Fort Jay, N. J., for duty, from Fort Riley: Lieut William E. Balsinger, New Orleans.

At Fort Oglethorpe, for instruction: Lieut. William L. Bendel, Lake Charles; Edgar J. Beranger, New Orleans; William E. Barker, Plaquemine.

At Fort Sam Houston, Texas, for duty, from Camp Travis: Major Edmund Moss, New Orleans.

DIED.—On August 26, 1918, Dr. W. O. Schultzman, of Baton Rouge, La., aged 26 years.

On August 9, 1918, Lieutenant-Colonel Clarence Leroy Cole, M. R. C., Fort Sam Houston, Texas.

BOOK REVIEWS AND NOTICES

All new publications sent to the JOURNAL *will be appreciated and will invariably be promptly acknowledged under the heading of "Publications Received." While it will be the aim of the* JOURNAL *to review as many of the works accepted as possible, the editors will be guided by the space available and the merit of respective publications. The acceptance of a book implies no obligation to review.*

Blood Transfusion, Hemorrhage and the Anemias, by Bertram M. Bernstein, A. B., M. D., F. A. C. G. J. B. Lippincott Company, Philadelphia and London.

Dr. Bernstein has given in this book of 250 pages a review of the various methods of blood transfusion and the indications for same.

He briefly, but concisely, treats of practically all phases of the subject, such as the phenomenon of bleeding, the diagnosis and control of hemorrhage, also the indications and the dangers, as well as the methods, of transfusion.

The work adheres to the practical side of the subject, both as regards discussions of indications and selections of transfusion methods. In the appendix the author has given the various hemolytic and agglutination tests described by Moss, Brem, Simon and Sydenstricke.

The book is certain to prove of value to the physician who is engaged

in clinical work of this nature and who desires to know concretely what is being done and how to do it. ELIZABETH BASS.

Typhoid Fever, by Frederick P. Gay. The MacMillan Company, New York.

The author has presented in this small volume an excellent exposition of the problem of typhoid fever.

It treats historically the development and present status of our knowledge concerning this important malady as viewed from the standpoint of its mechanism.

It shows the very close relationship between the clinical and the laboratory side of the disease by following the life-history of the typhoid bacillus rather than the manifestations of the disease it produces.

The book is divided into a number of chapters which cover the general survey of the knowledge concerning typhoid fever, the disease as a cause of death and disability, the modes of infection and the pathogenicity of typhoid fever, the diagnosis, sequelæ and carrier conditions, general measures of protection, treatment, etc.

The chapter on the protective value of vaccination against typhoid fever and the statistics relative to same are most interesting reading ELIZABETH BASS.

Studies in the Anatomy and Surgery of the Nose and Ear, by Adam E. Smith, M. D. Paul B. Hoeber, New York, 1918.

This is a very timely book, made up of original matter by the author, and is thus a veritable contribution to our knowledge of the subjects discussed. The illustrations are from actual dissections made at the Columbia University Medical School, and these alone would stamp the work as of a high order. The anatomical points are of a practical nature and show the structures as they are, and not schematically. In regard to treatment, the book again is eminently practical. The author dwells particularly on the value of posture in the treatment of otitis media and mastoiditis, in which operative intervention can sometimes be avoided. In a number of cases of incipient mastoiditis the present writer has brought about a recession of symptoms and complete **restitutio ad integrum** without a mastoid operation. Another practical point elaborated is the treatment of antral and frontal sinus disease by suction.

Dr. Smith has placed at the disposal of the profession a valuable addition to our knowledge of the topics touched upon. McSHANE.

Interpretation of Dental and Maxillary Rœntgenograms, by Robert H. Ivy, M. D., D. D. S. C. V. Mosby Company, St. Louis.

This is a valuable addition to the scientific literature on this subject, and should command the attention of students of radiology.

Interpretation of the Rœntgenograms is by far the most important step of the entire procedure, and the author has carefully prepared his text not only to aid the inexperienced, but to lay down fundamental rules for the expert. WALLACE WOOD, Jr.

Oral Sepsis in Its Relationship to Systemic Disease, by William W. Duke, M. D., Ph. B., Kansas City, Mo. C. V. Mosby Company, St. Louis, Mo.

This publication is a splendid contribution to the relationship of ill-health and defective teeth, and which every dentist should carefully

peruse. It contains much information the average medical practitioner will appreciate, and perhaps open the eyes of some few. It brings dentistry in closer relationship as a specialty of medicine.

WALLACE WOOD, Jr.

Pharmacology and Therapeutics and Preventime Medicine (Vol.VIII of the Practical Medicine Series). Edited by Bernard Fantus, M. S., M. D., and Wm. A. Evans, M. S., M. D., LL. D., Ph. D. The Year Book Publishers, Chicago. Series 1917.

This delightful little volume gives in concise and well-edited form the progress in these departments of medicine during the period covered. The first 220 pages are devoted to pharmacology and therapeutics, and the rest of the volume to preventive medicine. The whole text enables the busy practitioner or teacher to cover in a few hours what it would take him weeks to glean from the field of medical literature. A greatly added value is the discriminating editorial comment. If there is one feature more than another worthy of commendation, it is the attention given to the new agents and the new uses of old agents developed as a result of the world-war. One in service, or going into it, will find the book of particular value. O. W. B.

Materia Medica, Pharmacology, Therapeutics, Prescription Writing, by Walter A. Bastedo, Ph. G., M. D. Second edition. W. B. Saunders Company, Philadelphia, 1918.

The second edition, which adjusts the text to the new Pharmacopœia, is no disappointment to the great number who so highly appreciated this work when it first came from the press about three years ago. The author shows a wonderful command of his subjects and wisely avoids the mass of unessential details, so often given, to the confusion of the searcher after knowledge.

The drugs are arranged in groups according to their action, and the text is reinforced with numerous illustrations.

While the several phases of the subject are well handled, the particular value of the work is as a pharmacology. As a readable pharmacology it has few peers. The section on Digitalis is worth the price of the volume.

There are a few minor details that were not adjusted to conform to the great authority—the Pharmacopœia. Such are almost unavoidable in the rush of a general revision. They are, for example, the frequent use of c. c. instead of mils., gm. instead of Gm., dram instead of drachm, etc.

The noted author and teacher deserves the thanks of the entire medical profession. O. W. B.

A Handbook of Practical Treatment. Vol. IV. By John H. Musser, Jr., B. S., M. D., and Thomas C. Kelly, A. M., M. D. W. B. Saunders Company, Philadelphia, 1917.

This addition to the original Vol. III set of Practical Treatment "has been brought out for the purpose of giving the various original contributors opportunity of making in their articles such change or modifications as have occurred in the therapeusis of those diseases, the treatment of which they have already detailed. Thus, we believe it possible to supplement their contributions and to make them complete, both as to detailed treatment and as to the newer and modern procedures." Where the original contributors were unavailable, through death or other

cause, the editors have been fortunate in securing men of the highest international repute. Much entirely new matter has been included and the revision of old articles has usually been so arranged as to make practically complete reading.

A glance at the list of contributors and the well-known character of the young editors would assure even the most skeptical.

Some minor details that might well be suggested to the publishers are the correction of some errors in the Latin termination in prescriptions, the more uniform use of the standard Pharmacopœial or chemical titles in place of old proprietary names, and the conforming of nomenclature to the great authority—the United States Pharmacopœia.

Without the previous volume, this one is highly valuable. A library containing the earlier work could ill afford to miss this opportunity to complete the set. O. W. B.

Essentials of Volumetric Analysis, by Henry W. Schimpf, Ph. G., M. D., Professor of Analytical Chemistry in the Brooklyn College of Pharmacy. John Wiley & Sons, New York.

The appearance of the new United States Pharmacopœia has necessitated the revision of all textbooks touching the science of medicine, chemistry and pharmacy. This fact, together with the exhaustion of the second edition of Dr. Schimpf's helpful book, has caused the issuance of a third edition.

The work is an excellent introduction to the broad subject of volumetric analysis and is especially adapted to the needs of students of pharmaceutical chemistry.

The subject-matter is systematically arranged and the processes grouped under the headings of Alkalimetry, Acidimetry, Precipitation, Oxidimetry, Indirect Oxidation, Iodometry, Assay Processes for Drugs, Estimation of Alkaloids, Phenol, and Sugars.

The principles underlying these several groups are definitely indicated and illustrated by numerous practical examples. This third edition shows many new assay processes, prominent among which are those of the mercurial salts, phosphates and hypophosphites, chlorates, perborates, chloral, acetone, resorcinol, phenylsulphonates, arsenates, and alkali cacodylate.

The nomenclature employed throughout the work is consistent with pharmacopœial requirements. If the aim of the author is to present the principles of volumetric analysis in a form readily intelligible to students, it is the belief of the reviewer that he has accomplished his purpose.

Not the least important feature of the book is an appendix devoted to the description and application of indicators.

GEO. S. BROWN.

PUBLICATIONS RECEIVED

J. B. LIPPINCOTT COMPANY, Philadelphia and London, 1918.

The Essentials of Materia Medica and Therapeutics for Nurses, by John Foote, M. D. Third edition, revised and enlarged and reset.

International Clinics. Vol. 11, twenty-eighth series, 1918.

Nursing Technic, by Mary C. Wheeler, R. N.

C. V. MOSBY COMPANY, St. Louis, 1918.

The Hodgen Wire Cradle Extension Suspension Splint, by Frank G.

Nifong, M. D., F. A. C. S., with an introduction by Harvey G. Mudd, M. D., F. A. C. S.

Tropical Surgery and Diseases of the Far East, by John R. McDill, M. D., F. A. C. S.

A Treatise on Cystoscopy and Urethroscopy, by George Luys. Translated and edited, with additions, by Abr. L. Wolbarst, M. D.

Headaches and Eye Disorders of Nasal Origin, by Greenfield Sluder, M. D.

The Wassermann Test, by Charles F. Craig, M. D.

PAUL B. HOEBER, New York, 1918.

The Seriousness of Venereal Disease, by Sprague Carlton, M. D., F. A. C. S.

Neurological Clinics. Edited by Joseph Collins, M. D.

Symptoms and Their Interpretation, by James Mackenzie, M. D., LL. D. Third edition.

Clinical Disorders of the Heart-Beat, by Thomas Lewis, M. D., F. R. S., D. Sc., F. R. C. P.

W. B. SAUNDERS COMPANY, Philadelphia and London, 1918.

Diseases of the Male Urethra, including Impotence and Sterility, by Irvin S. Koll, B. S., M. D., F. A. C. S.

Clinical Diagnosis, by James Campbell Todd, Ph. B., M. D. Fourth edition, revised and reset.

LEE & FEBIGER, New York and Philadelphia, 1918.

A Manual of Otology, by Gorham Bacon, A. B., M. D., F. A. C. S.

P. BLAKISTON'S SON & CO., Philadelphia, 1918.

Naval Hygiene, by James Chambers Pryor, A. M., M. D.

F. A. DAVIS COMPANY, Philadelphia, 1918.

Principles and Practice of Infant Feeding, by Julius H. Hess, M. D.

B. W. HUEBSCH, New York, 1918.

The Small Family System. Is It Injurious or Immoral? by C. V. Drysdale, D. Ss. Prefatory Notes by Dr. B. Dunlop and Dr. Wm. J. Robinson.

MISCELLANEOUS:

Biennial Report of the Louisiana State Board of Health to the General Assembly of the State of Louisiana (1916-1917). (Hauser Printing Company, New Orleans, La.)

Weekly Bulletin of the Department of Health of the City of New York. June 8, 1918.

The Twenty-Seventh and Twenty-Eighth Annual Reports of the Eye, Ear, Nose and Throat Hospital, (1916 and 1917).

REPRINTS.

Venereal Prophylaxis; A Cosmetically Perfect, Bloodless Circumcision; A Sane and Rational Method in the Treatment of Acute Gonorrhea; Food for Thought Concerning Our Venereal Problem; Localizing Posterior Gonorrheal Urethritis, by Henry J. Millstone, M. D.

Un Nuovo Metodo di Gastrectomia Con la Ricostruzione Anatomo-Fisiologica Dei Rapporti Fra Stomaco ed Intestino; Perforazione Dello Stomaco e Dell' Intesino; La Sterilizzazione Delle Piaghe; L'Esclusione del Piloro per Mezzo di Bandelette Elastiche; Emostasi per Mezzo di Palloncini Elastici, per il Prof. Dott. Angelo L. Soresi.

MORTUARY REPORT OF NEW ORLEANS.

Compiled from the Monthly Report of the Board of Health of the City of New Orleans, for July, 1918.

CAUSE.	White.	Colored.	Total.
Typhoid Fever	7	7	14
Intermittent Fever (Malarial Cachexia)	1	1	2
Syphilis	2	8	10
Pellagra	2	4	6
Scarlet Fever			
Whooping Cough	14	2	16
Diphtheria and Croup	2		2
Influenza	1	4	5
Cholera Nostras			
Pyemia and Septicemia			
Tuberculosis	38	48	86
Cancer	19	10	29
Rheumatism and Gout	1	1	2
Diabetes	1		1
Alcoholism	1		1
Encephalitis and Meningitis	1	1	2
Locomotor Ataxia			
Congestion, Hemorrhage and Softening of Brain	25	10	35
Paralysis	3	3	6
Convulsions of Infancy	1	2	3
Other Diseases of Infancy	24	13	37
Tetanus	1	3	4
Other Nervous Diseases	4	1	5
Heart Diseases	52	50	102
Bronchitis	1	1	2
Pneumonia and Broncho-Pneumonia	10	15	25
Other Respiratory Diseases	1	1	2
Ulcer of Stomach	2		2
Other Diseases of the Stomach	4	3	7
Diarrhea, Dysentery and Enteritis	27	16	43
Hernia, Intestinal Obstruction	4	7	11
Cirrhosis of Liver	8	4	12
Other Diseases of the Liver	3		3
Simple Peritonitis			
Appendicitis	5	1	6
Bright's Disease	22	24	46
Other Genito-Urinary Diseases	10	9	19
Puerperal Diseases	2	4	6
Senile Debility			
Suicide	4	2	6
Injuries	19	12	31
All Other Causes	12	4	16
TOTAL	334	271	605

Still-born Children—White, 20; colored, 23; total, 43.

Population of City (estimated)—White, 276,000; colored, 102,000; total, 378,000.

Death Rate per 1000 per Annum for Month—White, 14.31; colored, 31.27; total, 18.90. Non-residents excluded, 17.18.

METEOROLOGIC SUMMARY (U. S. Weather Bureau).

Mean atmospheric pressure. 30.01

Mean temperature. 83

Total precipitation. . . . . 2.03 inches

Prevailing direction of wind, Southwest.